VOLUME 1
DESCRIPTION DE LA DEMANDE

Parc éolien des Lavières

Commune de Condes
Département : Haute-Marne (52)

Septembre 2020
Version consolidée en décembre 2021

valeco
PRODUCTEUR D'ÉNERGIES RENOUVELABLES

ATER Environnement
Aménagement du Territoire – Energies Renouvelables

Version	Elaboré par :	Vérifié par :	Approuvé par :
Août 2020	ATER Environnement	ATER Environnement	VALECO
	Delphine PARASSIN	Marine PACHOUD-GUÉRIN	Lucas GAILLARD

SOMMAIRE

1 PRESENTATION DE LA DEMANDE

Le présent dossier a pour objectif de présenter une demande d'Autorisation Environnementale sur la commune de Condes, pour un parc éolien classé sous la rubrique I.C.P.E. 2980.

La lettre de demande se trouve ci-contre.

Constitué de 3 éoliennes et de 1 poste de livraison, ce parc sera construit et exploité par la Société par Actions Simplifiée PE des Lavières, Maître d'Ouvrage du projet.

Il s'inscrit dans le cadre de la politique nationale en faveur des énergies renouvelables et notamment les lois Grenelle 1 et 2 la Programmation Pluriannuelle de l'Energie qui prévoit d'atteindre une production de 24,1 GW en 2023 et entre 33,2 et 34,7 GW en 2028. Rappelons qu'au 31 décembre 2019, la France comptait une puissance éolienne installée de 16 494 MW (source : source : Panorama de l'électricité renouvelable, RTE Janvier 2020).

Ce projet initié en 2017 contribuera de manière significative aux objectifs 2020 fixés par le Plan Climat Air Énergie Régional de la Champagne-Ardenne, à savoir 4 296 MW éolien installés en 2020.

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PRODUCTEUR D'ÉNERGIES RENOUVELABLES

PE des Lavières
188 Rue Maurice Béjart – CS 57392
34184 MONTPELLIER
Tel : 04 67 40 74 00
Fax : 04 67 40 74 05

Préfecture de La Haute-Marne
89 Rue de la Victoire de la Marne
52011 CHAUMONT Cedex

Fait le 23/11/2021, à Boulogne-Billancourt

Objet : Demande d'Autorisation Environnementale Unique d'un parc éolien sur la commune de Condes, par la société PE des LAVIERES (VALECO).

Monsieur le Préfet,

En application des dispositions de l'ordonnance n°2017-80 du 26 janvier 2017 et des décrets n°2017-81 du 26 janvier 2017 et n°2017-82 du 26 janvier 2017 relatifs à l'autorisation environnementale et conformément aux dispositions des articles R181-12 à R181-15 du code de l'environnement,

Je soussigné, M. Sébastien APPY, de nationalité Française, agissant en tant que Gérant de la SAS PE des Lavières, dont le siège social est 188 Rue Maurice Béjart – CS 57 392 - 34184 MONTPELLIER, ai l'honneur de solliciter :

La demande d'Autorisation Environnementale Unique pour un parc éolien.

- Département : 52
- Commune : CONDES

La présente demande vise la création d'un parc éolien constitué de 3 aérogénérateurs, de puissance unitaire maximale de 4,2 MW, et d'un poste de coupure sur la commune de CONDES.

Il s'agira de l'implantation d'éoliennes dont la hauteur maximale de mat est de 120 m et dont le diamètre maximal du rotor est de 141 m. Le Parc éolien des Lavières regroupe 3 éoliennes pour une puissance maximale totale installée de 12,6 MW.

PE DES LAVIERES
188 rue Maurice BEJART - 34080 MONTPELLIER – France
Tél. 04 67 40 74 00 – Fax 04 67 40 74 05 – www.groupevaleco.com
SAS au capital de 500 €- Siret n° 883 462 558 00015– R.C.S. MONTPELLIER

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Conformément à la loi du 12 juillet 2010 portant engagement national pour l'environnement et au décret n°2011-984 du 23 août 2011 modifiant la nomenclature des ICPE, cette demande s'inscrit dans la nomenclature ICPE sous la rubrique suivante :

Rubrique ICPE	Désignation de la rubrique	Volume activité	Régime
2980	Installation terrestre de production d'électricité à partir de l'énergie mécanique du vent et regroupant un ou plusieurs aérogénérateurs dont le mât a une hauteur supérieure ou égale à 50 m	3 aérogénérateurs dont la hauteur maximale de mât est de 120m	AUTORISATION Rayon d'affichage 6 km

Par la présente, la SAS PE des LAVIERES s'engage à respecter les engagements formulés dans le dossier ci-joint.

Par ailleurs, il est demandé une dérogation pour le plan du parc éolien visé à l'article D181-15-2 alinéa I-9 du Code de l'Environnement. Pour une meilleure lisibilité et compréhension des plans, une échelle de 1/1500 pour les plans d'ensemble ainsi qu'une échelle au 1/2500 pour les plans de masse sont demandées au lieu de l'échelle au 1/200.

Vous souhaitant bonne réception, nous vous prions de croire, Monsieur le Préfet, en l'assurance de nos respectueuses considérations.

Sébastien APPY
Gérant
Audry BEAUVISAGE
Pour le gérant, par délégation de signature

Contact :
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Figure 1 : Lettre de demande (source : VALECO, 2020)

2 PROCEDURE D'AUTORISATION ENVIRONNEMENTALE

2.1. Au titre de la réglementation sur les installations classées

La réglementation environnementale des établissements industriels susceptibles d'engendrer des risques, des pollutions, des nuisances ou tout autre problème d'environnement est encadrée par la loi du 19 juillet 1976 sur les Installations Classées pour la Protection de l'Environnement (ICPE).

Cette réglementation est contrôlée par la DREAL (Direction Régionale de l'Environnement, de l'Aménagement et du Logement), qui assure la police des installations classées pour le compte du Ministère de l'écologie, du développement durable et de l'énergie.

L'importance des enjeux d'environnement pour un site industriel est liée au nombre et à la nature des installations qu'il accueille (ateliers, unités, machines, stockages, etc.) susceptibles eux-mêmes de générer des risques et des nuisances.

Tous les types d'installations industrielles sont identifiés dans une nomenclature codifiée qui définit en fonction des seuils d'importance, trois niveaux de contraintes (classement) :

- **Niveau S** : installations soumises à servitude. Il s'agit d'installations présentant des risques particulièrement élevés (aussi appelées installations SEVESO). Elles font l'objet d'une attention particulière en raison des conséquences graves que pourrait avoir un accident et donnent lieu à ce titre à l'instauration d'un périmètre de servitudes d'utilité publique. Elles font par ailleurs l'objet d'une procédure identique à celle des installations de niveau A. Aucune installation de niveau S n'est concernée ici ;
- **Niveau A** : installations soumises à autorisation. La procédure d'autorisation comprend une instruction administrative lourde avec notamment une enquête publique. C'est le cas ici pour la rubrique 2980 qui porte sur l'activité de production d'électricité à partir de l'énergie mécanique du vent ;
- **Niveau E** : installations soumises à enregistrement. Sont soumises à enregistrement, les installations qui présentent des dangers ou inconvénients graves pour les intérêts mentionnés à l'article L 511-1 du Code de l'Environnement, lorsque ces dangers et inconvénients peuvent, en principe, eu égard aux caractéristiques des installations et de leur impact potentiel, être prévenus par le respect de prescriptions générales édictées par le ministre chargé des installations classées ;
- **Niveau D** : installations soumises à déclaration, ce sont celles qui sont moins impactantes. La procédure comprend la présentation d'un dossier simplifié à l'administration qui en notifie l'acceptation sur la base de prescriptions types ;
- **Niveau NC** : installations non classées. Ce sont celles qui, de par leur nature ou leur petite importance, sont considérées comme sans impact pour l'environnement.

Remarque : L'article L.512-11 du Code de l'Environnement prévoit que certaines catégories d'installations relevant du régime déclaratif peuvent être soumises à des contrôles périodiques effectués par des organismes agréés (C).

Le décret 2019-1096 du 28 octobre 2019 précise la nomenclature codifiée pour les projets de production à partir de l'énergie mécanique du vent ainsi que le rayon applicable pour la réalisation de l'enquête publique.

N°	A – Nomenclature des installations classées		
	Désignation de la rubrique	**A, E, D, S, C (1)**	**Rayon (2)**
2980	Installation terrestre de production d'électricité à partir de l'énergie mécanique du vent et regroupant un ou plusieurs aérogénérateurs : **1.** Comprenant au moins un aérogénérateur dont la hauteur du mât et de la nacelle au-dessus du sol est supérieure ou égale à 50 m ; **2.** Comprenant uniquement des aérogénérateurs dont la hauteur du mât et de la nacelle au-dessus du sol est inférieure à 50 m et au moins un aérogénérateur dont la hauteur du mât et de la nacelle au-dessus du sol est supérieure ou égale à 12 m, lorsque la puissance totale installée est : **a)** Supérieure ou égale à 20 MW…… **b)** Inférieure à 20 MW……	A A D	6 6

(1) A : autorisation, E : enregistrement, D : déclaration, S : servitude d'utilité publique, C : soumis au contrôle périodique prévu par l'article L. 512-11 du Code de l'Environnement

(2) Rayon d'affichage en kilomètres

Tableau 1 : Nomenclature ICPE pour l'éolien terrestre (source : décret n°2019-1096 du 28 octobre 2019)

Le projet du parc éolien des Lavières, avec des éoliennes d'une hauteur de mât et de nacelle supérieure à 50 mètres, fait donc l'objet d'une procédure d'autorisation au titre des Installations Classées pour la Protection de l'Environnement (ICPE).

2.2. Insertion de l'enquête publique dans la procédure

2.2.1. Introduction

Les demandes relatives aux installations classées soumises à autorisation, en application des dispositions du Code de l'Environnement, Livre I[er], font l'objet **d'une enquête publique et d'une enquête administrative** en application des chapitres II et III.

Cela s'appuie notamment sur les articles suivants du Code de l'Environnement :

- Articles L. 181-9 et suivants du Code de l'Environnement ;
- Articles R. 181-36 et suivants du Code de l'Environnement ;

Selon l'article L.123-1 du Code de l'Environnement, l'enquête publique a pour objet « ***d'assurer l'information et la participation du public ainsi que la prise en compte des intérêts des tiers lors de l'élaboration des décisions susceptibles d'affecter l'environnement mentionnées à l'article L.123-2. Les observations et propositions recueillies au cours de l'enquête sont prises en considération par le maître d'ouvrage et par l'autorité compétente pour prendre la décision*** ».

La procédure d'instruction du dossier de demande d'autorisation environnementale est la suivante :

- Lorsque le Préfet du département d'instruction reçoit le dossier et le juge complet, il saisit l'Autorité Environnementale afin qu'elle puisse étudier le dossier, puis, lorsqu'il juge le dossier recevable, il saisit le tribunal administratif pour la désignation du commissaire enquêteur ou de la commission d'enquête afin de soumettre le dossier au public par voie d'arrêté ;

- L'enquête publique est annoncée par un affichage dans les communes concernées et par des publications dans la presse (deux journaux locaux ou régionaux), aux frais du demandeur. Pendant toute la durée de l'enquête, un avis annonçant le lieu et les horaires de consultation du dossier reste disponible via les panneaux d'affichages municipaux dans les communes concernées par le rayon d'affichage (ici 6 km), ainsi qu'aux abords du site concerné par le projet ;

- Le dossier et un registre d'enquête sont tenus à la disposition du public pendant un mois à la mairie des communes accueillant l'installation classée, le premier pour être consulté, le second pour recevoir les observations du public. Les personnes qui le souhaitent peuvent également s'entretenir avec le commissaire enquêteur les jours où il assure des permanences. Un registre dématérialisé sera également consultable, en accord avec l'article L.123-10 modifié par Ordonnance n°2017-80 du 26 janvier 2017 et les articles R.123-9, R.123-10 et R.123-12 modifiés par le décret n°2017-626 du 25 avril 2017 du Code de l'Environnement ;

- Le conseil municipal des communes où le projet est implanté et celui de chacune des communes dont le territoire est partiellement ou totalement inclus dans le rayon d'affichage sont sollicités par le préfet afin de donner leur avis sur la demande d'autorisation. Ne peuvent être pris en considération que les avis exprimés au plus tard dans les 15 jours suivant la clôture de l'enquête publique (article R.181-38 du Code de l'Environnement).

A l'issue de l'enquête publique en mairie, le dossier d'instruction accompagné du registre d'enquête, de l'avis du commissaire enquêteur, du mémoire en réponse du pétitionnaire, des avis des conseils municipaux et des avis des services concernés, est transmis à l'Inspecteur des Installations Classées qui rédige un rapport de synthèse et un projet de prescription au Préfet du département concerné.

Ces documents sont ensuite généralement présentés aux membres de la CDNPS (Commission Départementale de la Nature, des Paysages et des Sites) pour avis sur les propositions d'analyse et d'arrêté de l'Inspecteur des Installations Classées. L'ensemble de ces étapes permet au Préfet de statuer sur la demande.

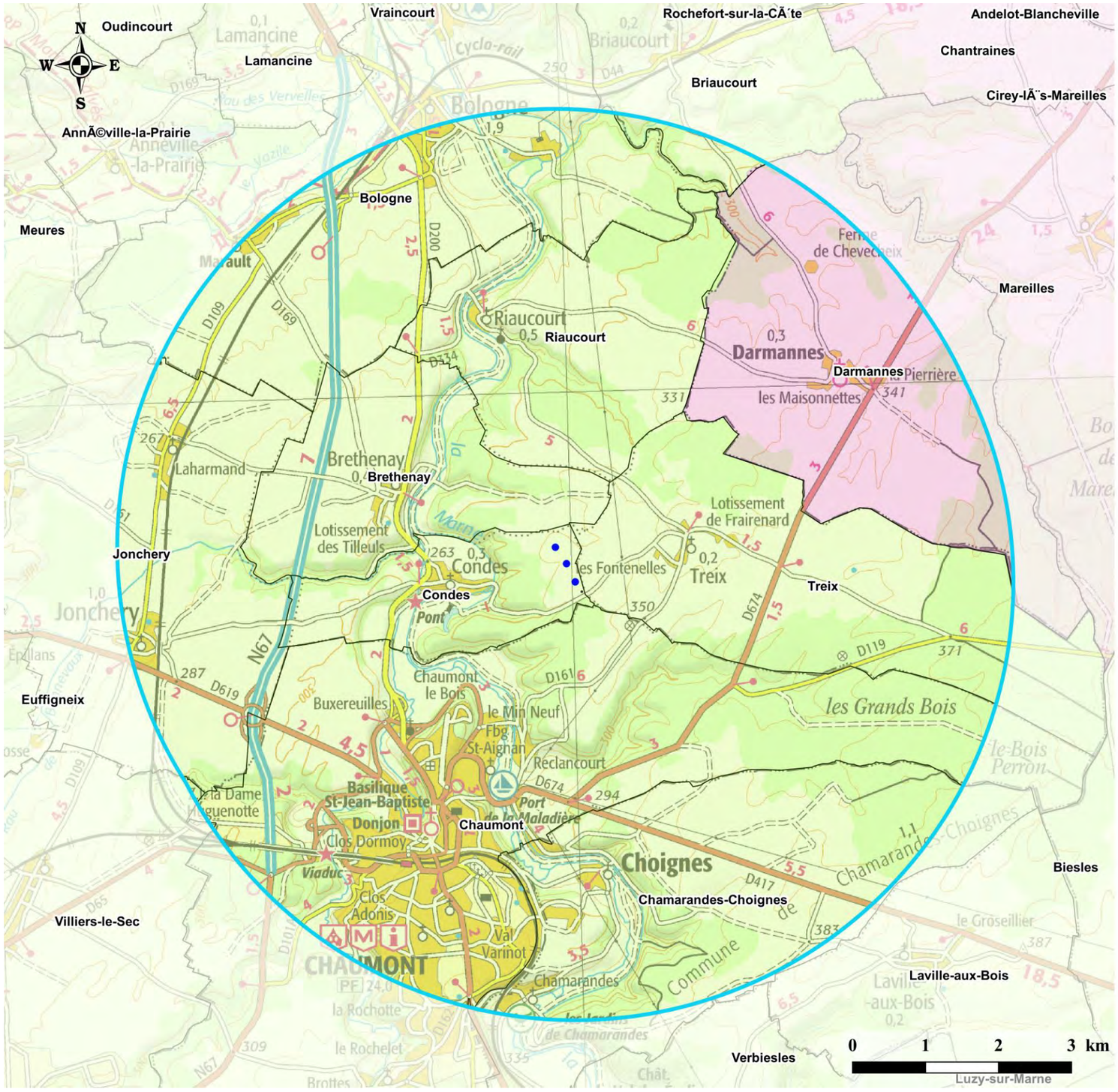
2.2.2. Rayon d'affichage

Le rayon d'affichage de 6 km permet de définir les communes sur lesquelles devra avoir lieu l'affichage de l'enquête publique.

Ainsi, le périmètre défini comprend 10 communes du département de la Haute-Marne, appartenant à 2 intercommunalités.

Commune	Intercommunalité	Département
Bologne	Communauté d'Agglomération de Chaumont	Haute-Marne
Brethenay		
Briaucourt		
Chamarandes-Choignes		
Chaumont		
Condes		
Jonchery		
Riaucourt		
Treix		
Darmannes	Communauté de Communes Meuse-Rognon	

Tableau 2 : Communes comprises dans le rayon d'affichage de 6 km autour de l'installation



Communes concernées par l'affichage de l'enquête publique

ATER Environnement
Aménagement du Territoire - Energies Renouvelables

Août 2020

Légende

Parc éolien des Lavières

- Eolienne

Limites territoriales

- Limite communale

Etablissements Publics de Coopération Intercommunale

- CA de Chaumont
- CC Meuse Rognon

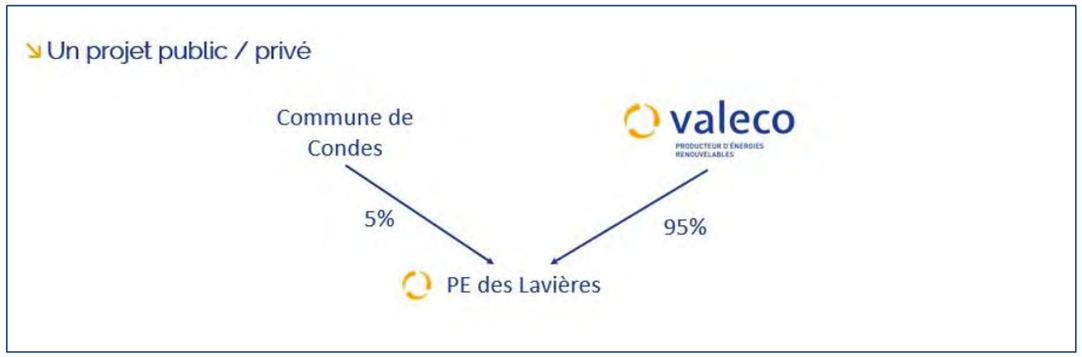
Carte 1 : Communes concernées par le rayon d'affichage de 6 km autour de l'installation

3 PRESENTATION DU DEMANDEUR

3.1. Identification du demandeur

Le demandeur de l'Autorisation Environnementale, maître d'ouvrage et futur exploitant du parc, est la Société par Actions Simplifiée (SAS) « PE des Lavières », dont l'identité complète est présentée ci-après.
La SAS PE des Lavières appartient :

- A hauteur de 95% à la société Valeco, elle-même détenue à 100% par la société EnBW ;
- A hauteur de 5% à la commune de Condes. En effet, afin d'intégrer davantage le territoire dans le projet et de maximiser les retombées économiques locales, il a été proposé d'ouvrir l'actionnariat dans la société portant le projet de parc éolien à la collectivité. Celle-ci a accepté d'entrer au capital par une délibération adoptée à l'unanimité en date du 28 septembre 2021 (cf. annexe 15).



L'objectif final de la société PE des Lavières est la construction du parc avec les éoliennes les mieux adaptées au site, la mise en service, l'exploitation et la maintenance pendant toute la durée de vie du parc éolien.

La société PE des Lavières, maitre d'ouvrage du projet éolien et demandeur de l'ensemble des autorisations administratives, a été constituée pour rendre plus fluide l'articulation administrative, juridique et financière du parc éolien. Ce type de structure permet de regrouper au sein d'une entité juridique dédiée les autorisations, les financements, les contrats spécifiques à ce projet, et ainsi mettre en place un régime de garanties adapté à la fois au financement bancaire (identification des contrats correspondant au projet) et au démantèlement (unité de temps et de lieu pour le suivi des garanties).

Raison sociale	PE des Lavières
Forme juridique	Société par Actions Simplifiée (SAS)
Capital social	500 €
Siège social	188, rue Maurice Béjart 34080 MONTPELLIER
Registre du commerce	883 462 558 R.C.S. Montpellier
Code NAF	3511Z – Production d'électricité

Tableau 3 : Références administratives de la SAS PE des Lavières (source : VALECO, 2021)

Nom	BEAUVISAGE
Prénom	Audry
Nationalité	Française
Qualité	Responsable régional, détenteur d'une délégation de signature

Tableau 4 : Références du signataire pouvant engager la société (source : VALECO, 2021)

3.2. La société de développement : VALECO

Histoire

Gilbert GAY, un ingénieur amoureux de la nature et passionné de nouvelles technologies a fondé la société VALECO en 1989. À cette période :

- La prise de conscience que les sources d'énergies fossiles s'épuisent inexorablement commence à poindre ;
- Les technologies de production d'énergies renouvelables entament leur développement.

Forte de son esprit novateur, la société VALECO développe son savoir-faire et son expérience dans ce contexte de transition. L'entreprise familiale, devient en quelques années un acteur majeur du secteur énergétique français sous la direction d'Erick GAY.

Depuis juin 2019, la société VALECO est détenue à 100% par EnBW Energie Baden-Württemberg AG et regroupe plusieurs sociétés d'exploitation d'unités de production d'énergie, chaque centrale disposant de sa propre structure exclusivement dédiée à l'exploitation et à la maintenance des installations.

Le groupe VALECO est présent en France avec six agences sur le territoire métropolitain et à l'international, dans des pays alliant fort potentiel et stabilité. Présent au Canada depuis 2012, il renforce sa présence sur le continent américain en ouvrant une agence au Mexique en 2015. Toujours à l'écoute des marchés les plus prometteurs, l'équipe export travaille également sur des opportunités au Maghreb, en Asie et de façon plus générale, sur tout le continent américain.

Carte 2 : Développement à l'international de la société VALECO (source : VALECO, 2020)

Présentation

Aujourd'hui, VALECO fait partie du groupe EnBW, 3ème producteur d'électricité et leader Européen des énergies renouvelables.

EnBW est un groupe à actionnariat presque entièrement public. Cet ADN public pousse VALECO à travailler en étroite collaboration avec les collectivités territoriales d'implantation de ses parcs éoliens et photovoltaïques.

Le capital de VALECO et du groupe EnBW est réparti de la façon suivante :

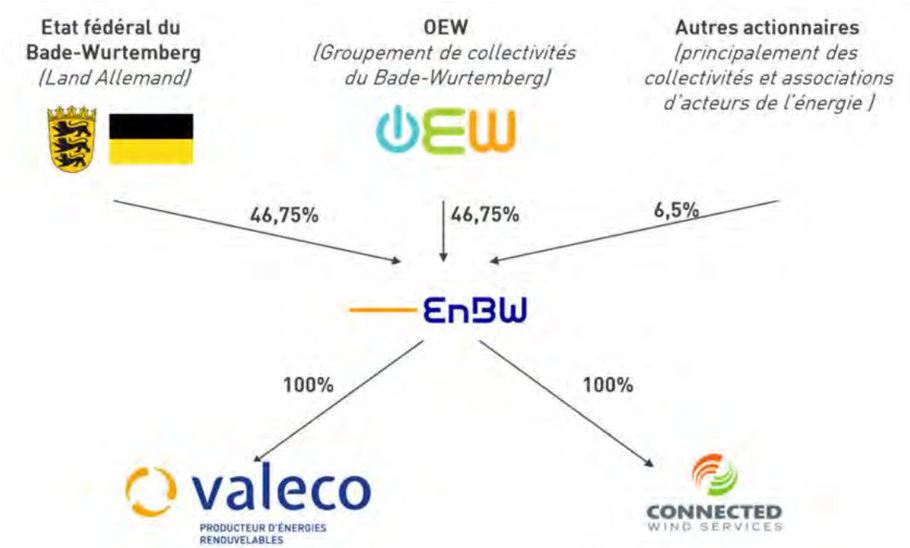


Figure 2 : Répartition du capital entre VALECO et EnBW (source : VALECO, 2019)

EnBW en quelques chiffres :

- **3ème** fournisseur d'énergie en Allemagne
- **13 GW** de capacité de production
- **21.000** collaborateurs
- **5,5** Millions de clients
- **21** Milliards d'euros de Chiffres d'Affaires (2017)

Sur le marché français, la société Connected Wind Services (CWS), filiale à 100% du groupe EnBW, a vocation à exploiter et entretenir les éoliennes de VALECO, en direct, sans sous-traiter ces taches au fabricant des éoliennes.

En France, Valeco est propriétaire de :

- **17** centrales solaires au sol en exploitation ou en construction
- **40** parcs éoliens en exploitation ou en construction

En Europe, le groupe possède :

- **36** centrales solaires en exploitation
- **73** parcs éoliens terrestres (360 éoliennes) en exploitation
- **2** parcs offshore (101 éoliennes) en exploitation

Références

Carte 3 : Réalisations et projets éoliens de VALECO (source : VALECO, 2020)

La société VALECO n'a pas cédé de parcs et/ou de centrales depuis 2015 et elle n'a pas vocation à revendre les projets qu'elle développe depuis.

CENTRALES PHOTOVOLTAÏQUES

Centrale Solaire de LUNEL

LUNEL (34)

Puissance électrique : 500 KWc

Mise en service : Septembre 2008

Centrale Solaire de Cahors sud (46)

Puissance électrique : 8 MWc

Mise en service : 2011

Centrale solaire Le Val (83)

Puissance électrique : 7,2 MWc

Mise en service : 2015

Centrale solaire de Mégasol (13)

Puissance électrique : 6 MWc

Mise en service : 2016

Centrale Solaire de PONTS-DE-CE (49)

Puissance électrique : 9,2 MWc

Mise en service : 2019

Centrale solaire de Weesow-Willmersdorf (Allemagne)

Puissance électrique : 180 MWc

Mise en service : prévue pour 2020

PARC EOLIENS

Parc éolien de St Jean de Lachalm (43)

Puissance électrique : 18 MW

Mise en service : prévue pour 2008

Parc éolien de Champ Perdus (80)

Puissance électrique : 12 MW

Mise en service : 2014

Pôle éolien Escandorgue (34)

Puissance électrique : 32 MW

Mise en service : prévue pour 2016-2017

Parc éolien de Fenouillèdes (66)

Puissance électrique : 23,5 MW

Mise en service : 2019

Pôle éolien Belleuse (80)

Puissance électrique : 11 MW

Mise en service : prévue pour 2020

Parc éolien de Saint Félix (17)

Puissance électrique : 19,8 MW

Mise en service : 2020

4 CAPACITES TECHNIQUES ET FINANCIERES

Ce chapitre répond aux articles 23-2 et suivants de la circulaire du 9 juin 1994. Ces articles visent à assurer que l'exploitant dispose des capacités techniques et financières pour :

- Procéder à la remise en état du site lors d'accidents éventuels, dans le cadre de l'exploitation ;
- Assurer la surveillance du site.

La société PE des Lavières est une société dédiée créée par la société VALECO pour porter et exploiter le projet éolien des Lavières.

Le but du développeur du projet, VALECO, est d'amener cette société à être autoportante à l'aide de son projet éolien. Celui-ci assure la trésorerie nécessaire à la société PE des Lavières pour assumer ses responsabilités d'exploitant en sollicitant les prestations de services des experts qualifiés.

Les paragraphes suivants ont pour but de démontrer que la société PE des Lavières, détenue à 95% par VALECO et à 5% par la commune de Condes, se munira de toutes les capacités techniques et financières requises pour gérer l'exploitation du projet éolien des Lavières.

4.1. Capacités techniques

Moyen techniques et humains

Tous les collaborateurs du groupe disposent du matériel nécessaire à la bonne réalisation de leurs tâches. Le matériel mis à disposition de l'ensemble des salariés est adapté à chaque corps de métier de l'entreprise. Ce matériel est en constante évolution et est sans cesse mis à jour pour répondre aux besoins de la société.
Valeco est connecté à l'ensemble de ses installations par le biais de serveurs performants lui permettant de suivre 24 heures sur 24, 7 jours sur 7, sa production et d'assurer la maintenance dans les plus brefs délais.
De plus, l'entreprise dispose également d'une flotte de véhicules disponibles à tout moment pour les déplacements sur site et pour rencontrer ses partenaires.
Depuis 2014, l'effectif n'a cessé d'augmenter jusqu'à compter aujourd'hui près de 200 personnes.

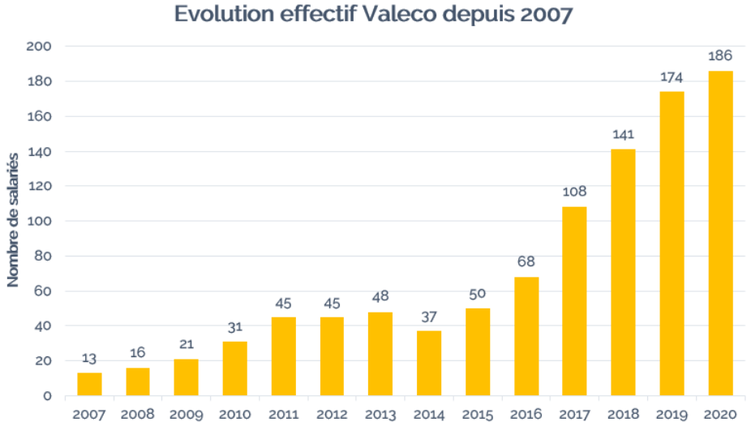


Figure 3 : Evolution des effectifs de Valeco depuis 2007 (source : VALECO, 2021)

Opération d'exploitation (hors maintenance aérogénérateurs)

Le pétitionnaire, PE des Lavières a confié les opérations d'exploitation (hors maintenance aérogénérateurs) à un exploitant délégué spécialisé dans les opérations de sites de production d'énergie.

Il s'agit ici de la société Valeco qui a, par ailleurs, en charge l'exploitation de l'ensemble des centrales électriques de la société.

Les capacités techniques de Valeco sont principalement justifiées par son expérience acquise et son savoir-faire démontré dans les domaines de la production d'énergie.

Une partie des salariés de Valeco (techniciens et ingénieurs) est spécialement formée à l'exploitation et à la maintenance des aérogénérateurs et suivent régulièrement des formations de remise à niveau et possèdent les habilitations suivantes : au travail en suspension sur éolienne, aux travaux sur du matériel électrique de tension 20 kV, de haute tension HTA et basse tension BT, aux consignations BC/HC.

Les équipes du service du suivi technique et des opérations de maintenances interviennent tout au long de l'année sur la totalité des unités de production électrique Valeco. Elles sont notamment chargées de :

- Veiller au bon déroulement des vérifications de maintenance ;
- Garantir le bon état des équipements en vue de leur pérennité et de leur bonne production ;
- Vérifier les bonnes performances de l'installation et à en faire état par des rapports mensuels ;
- Assurer le suivi de production 24 h / 24 h ainsi que la vente de l'énergie produite ;
- Programmer et réaliser les actions de maintenance préventives des équipements ;
- Répondre aux alarmes de défaut de l'installation et accomplir la maintenance corrective ;
- Veiller au bon état du terrain notamment son enherbement et débroussaillage.

Valeco assure un suivi permanent en ayant recours à l'astreinte de certains salariés. Les équipements de suivi permettent un relevé en temps réel de chacune des machines des parcs et de chaque poste électrique qui lui sont raccordés, tout en permettant de procéder à tout moment à des manœuvres télécommandées. Il permet ainsi de renforcer la sécurité des installations, d'améliorer les délais d'intervention, d'analyser les données machines afin de prévoir des actions de maintenance correctives ou préventives.

En complément les actifs éoliens et photovoltaïques de Valeco seront raccordés au Centre d'exploitation de Barhöft (Allemagne) où des équipes de conduite veillent 24h/24 et 7j/7 sur les conditions d'exploitation et déclenchent, le cas échéant, en liaison avec leurs collègues en France, les actions correctives nécessaires.

Figure 4 : Conduite opérationnelle des installations de production au sein du Centre d'Exploitation de Barhöft

Opération de maintenance des aérogénérateurs

Durant la période de garantie, les opérations de maintenance sur les aérogénérateurs seront confiées au fabricant qui conçoit, produit et installe ses machines.
A l'issue de cette période et selon le cadre technique, la maintenance des éoliennes sera confiée pour une période complémentaire :

- Au constructeur des machines ou,
- À la filiale de maintenance du Groupe EnBW : CONNECTED WIND SERVICES

Le Groupe VALECO peut s'appuyer sur le savoir-faire de CONNECTED WIND SERVICES (CWS), opérateur de maintenance du Groupe EnBW Energie Baden-Württemberg AG afin de réaliser des opérations de maintenance indépendamment du constructeur de l'aérogénérateur installé.
En tant que prestataire de maintenance, actif à l'international et cumulant plus de 30 années d'expérience, CWS a pour objectif d'offrir grâce à son indépendance et grâce à son expertise, des prestations adaptées aux enjeux techniques des exploitants de parcs éoliens. CWS est présent en France et a été sélectionné par un constructeur d'éoliennes de premier plan pour la maintenance intégrale de son parc de machines à installer en France.
Si la technologie des turbines est relativement complexe, elle est maîtrisée par les équipes de CWS qui assurent la maintenance de ce type de machines au quotidien pendant la phase d'exploitation de la centrale.
Le pétitionnaire peut donc justifier des capacités techniques disponibles en interne ou grâce à ses co-contractants.
La réalisation des opérations de maintenance grâce aux compétences internes du Groupe EnBW permet en sus de garantir une maintenance flexible et optimisée vis-à-vis des conditions d'exploitation et de pérenniser la maintenance indépendamment du constructeur.
Afin de garantir des prestations de services rapides, les techniciens peuvent à tout moment, accéder à tous les documents et bases de données techniques spécifiques à l'éolienne, grâce à une connexion à distance. De même, ils peuvent accéder à toutes les éoliennes en service à partir du système de surveillance à distance SCADA.

Les messages de défauts sont transmis à une centrale où est déterminé automatiquement quelle équipe de service se trouve la plus proche de l'éolienne en question.
Pour garantir une maintenance efficace des éoliennes, les défauts doivent acquittés le plus rapidement possible. La condition préalable essentielle, outre la fiabilité des éoliennes, est une bonne gestion des pièces de rechange. Ainsi, pour fournir rapidement et efficacement les matériaux de tous les centres de Service-maintenance, le prestataire de maintenance prend les mesures suivantes :

- Utilisation de composants compatibles ;
- Stockage des matériaux et composants standards ;
- Réparation ;
- Recyclage.

L'ensemble des ressources humaines et techniques de Valeco ou du constructeur permettra à la société PE des Lavières de réaliser une exploitation du parc éolien répondant à l'ensemble des exigences réglementaires, conformément aux termes contractuels prévus entre ces deux sociétés.

Description des opérateurs d'exploitation maintenance

Avant la mise en service industrielle du Parc éolien des Lavières, puis suivant une périodicité annuelle, l'exploitant réalisera des **essais** permettant de s'assurer du fonctionnement correct de l'ensemble des équipements. Ces essais comprennent :

- Un arrêt,
- Un arrêt d'urgence,
- Un arrêt depuis un régime de survitesse ou une simulation de ce régime.

Un **système de surveillance** complet garantit la sécurité de l'éolienne. Toutes les fonctions pertinentes pour la sécurité (par exemple : vitesse du rotor, températures, charges, vibrations) sont surveillées par un système électronique et, en plus, là où cela est requis, par l'intervention à un niveau hiérarchique supérieur de capteurs mécaniques. L'éolienne est immédiatement arrêtée si l'un des capteurs détecte une anomalie sérieuse.

Outres les dispositifs de sécurités intégrés aux éoliennes, les opérations de maintenance suivantes contribueront à réduire le risque :

- Maintenance et inspections périodiques sur les éoliennes :
  - Maintenance des 300 heures : la première maintenance après la mise en service a lieu après 300 heures ;
  - Inspection visuelle : une fois par an ;
  - Graissage d'entretien : une fois par an ;
  - Maintenance électrique : une fois par an ;
  - Maintenance mécanique : une fois par an.
- Lors des **inspections visuelles**, vérification de l'éolienne. Points particuliers de vigilance :
  - Corrosion ;
  - Dommages mécaniques (par ex. fissures, déformation, écaillage, câbles usés)
  - Fuites (huile, eau) ;
  - Unités incomplètes ;
  - Encrassements / corps étrangers.
- Maintenance mécanique :
  - Panneaux d'avertissement ;
  - Pied du mât / local des armoires électriques ;
  - Fondations ;
  - Mât : échelle de secours, ascenseurs de service, plate-forme et accessoires, chemin et fixation de câbles, assemblages à vis ;
  - Nacelle : treuil à chaîne, extincteurs et trousse de secours, système de ventilation, câbles, trappes, support principal, arbre de moyeu, transmissions d'orientation, contrôle d'orientation (« yaw »), couronne d'orientation, entrefer du générateur, groupe hydraulique, frein électromécanique, dispositif de blocage du rotor, assemblages à vis…

- Tête du rotor : rotor, câbles et lignes, générateur, moyeu du rotor et adaptateur de pale, engrenage de réglage des pales (« pitch »), système de graissage centralisé, vis des pales du rotor, pales de rotor ;
- Système parafoudre ;
- Anémomètre.

Les équipes de maintenance de la journée interviennent sur les anomalies et avaries techniques. Il s'agit de maintenance corrective. Elles assurent aussi la pérennité des machines (remplacement de pièces, mise à jour des logiciels, etc.). On parle alors de maintenance préventive.
Le fonctionnement des éoliennes ne se limitant pas aux heures ouvrées, le maintenancier mettra à disposition une astreinte nuit et week-ends/jours fériés chargée veiller au bon fonctionnement des installations.

Trois mois, puis un an après la mise en service industrielle, puis suivant une périodicité qui n'excédera pas trois ans, l'exploitant procèdera à un **contrôle de l'aérogénérateur** (contrôle des brides de mât, de la fixation des pales et contrôle visuel du mât). Tous les ans, l'exploitant procédera également à un contrôle des systèmes instrumentés de sécurité. Ces contrôles feront l'objet d'un rapport tenu à la disposition de l'inspecteur des installations classées.

Les **installations électriques extérieures et intérieures** à l'aérogénérateur sont entretenues en bon état et sont contrôlées avant la mise en service industrielle puis à une fréquence annuelle, après leur installation par une personne du service maintenance de l'exploitant.
Le contenu des rapports relatifs auxdites vérification sont tenus à disposition de l'administration.

De manière générale, l'exploitant dispose d'un **manuel d'entretien** de l'installation dans lequel sont précisés la nature et les fréquences des opérations d'entretien. Il tient également à jour pour chaque installation un registre dans lequel sont consignées les opérations de maintenance ou d'entretien et leur nature, les défaillances constatées et les opérations correctives engagées.
Le **rôle de l'exploitant** est de superviser le bon fonctionnement des installations de manière plus globalisée. En lien avec le maintenancier, il identifie les points d'amélioration de l'efficacité des moyens de production.
C'est son rôle que de permettre l'accès au parc éolien mais également d'en prévenir les risques éventuels (habilitations, sensibilisation du public, etc.).
Le **contrôle des équipements** de sécurité intrinsèques aux éoliennes est confié à un prestataire type bureau de contrôle.

Le maintenancier comme l'exploitant peut **surveiller à distance** l'état de l'installation de production, ce grâce à un logiciel de supervision type SCADA. Le SCADA permet le pilotage des éoliennes de manière tout à fait indépendante. Il collecte les données de production qui seront utilisées par les protagonistes pour améliorer le rendement des moyens de production.
Cet appareil a également pour fonction d'alerter les équipes d'astreinte de la maintenance lors d'un incident ou d'un dysfonctionnement quelconque.

4.2. Capacités financières

La société PE des LAVIERES a été créée pour le projet éolien objet de la présente demande. Cette société de projet n'a pas de personnel mais est en relation contractuelle avec les entreprises qui assureront l'exploitation (VALECO) et la maintenance du parc (le turbinier). Cette société ne peut donc démontrer d'expérience ou de références indépendamment de ses actionnaires qui apporteront les fonds propres destinés au financement de l'opération.

Par ailleurs, ce dernier étant conditionné à l'obtention des autorisations par la société de projet, elle ne peut donc justifier, au moment du dépôt de la demande, de l'engagement financier ferme d'un établissement bancaire.
La Direction Générale de la Prévention des Risques (DGPR) a validé le fait que la preuve de la capacité financière de l'exploitant doit se faire sur **l'économie générale du projet.**
Le pétitionnaire de la présente demande démontre sa capacité financière en présentant les éléments financiers relatifs à son projet.

Le montant de l'investissement est estimé à 17,640 M€.

Il convient de préciser que la totalité de l'investissement sera réalisée avant la mise en service de l'installation. Le Groupe EnBW souhaite financer ce projet intégralement par l'apport de fond propres dans le cadre d'un financement dit « Corporate » c'est-à-dire sans faire appel à un financement bancaire à l'échelle du projet.

Pour le financement de ces investissements, le Groupe EnBW a un accès flexible à diverses sources de financement parmi lesquelles[1] :

- Programme de financement par émission de dette : 7 Md€ dont 500 M€ levés dans le cadre d'un financement vert (4,3 Md€ disponibles) ;
- Emission d'obligations hybrides à hauteur de 3 Md€ dont 1 Md€ d'obligations vertes ;
- Programme de papier commercial à hauteur de 2 Md€ (1,4 Md€ disponibles) ;
- Ligne de crédit syndiquée à hauteur de 1,5 Md€ (intégralement disponible) ;
- Lignes de crédit bilatérales à hauteur de 921 M€.

Grâce à une stratégie financière saine et prévoyante et à un modèle économique pérenne, EnBW a obtenu de la part des deux agences de notation internationalement reconnues les notations supérieures suivantes :

- Moody's Investors Services : Baa1 / Stable (18 mai 2021) ;
- Standard & Poor's Ratings Services : A- / Stable (2 juin 2021).

Le **plan d'affaires prévisionnel** sur une durée d'exploitation de 20 ans indiquant les montants prévisionnels de chiffre d'affaires, de coûts et de flux de trésorerie, les charges et produits d'exploitation est présenté ci-après (Tableau 6 : Plan d'affaire prévisionnel de la SAS PE des Lavières).

Pour étayer sa démonstration, le pétitionnaire présente les documents suivants :

- La lettre d'intention du gérant de la société PE des Lavières d'établir les garanties financières auprès du Crédit Agricole du Languedoc ;
- La lettre d'intérêt de la Caisse d'épargne CEPAC ;
- Les principaux résultats financiers de VALECO SAS, qui sont présentés dans le tableau et le graphique ci-dessous :

Année	Chiffres d'affaires	Chiffres d'affaires éoliens	Résultat de l'exercice
2016	33 366 000 €	13 261 000 €	5 560 000 €
2017	49 738 000 €	21 430 000 €	11 611 000 €
2018	51 303 000 €	24 321 000 €	4 072 000 €

Tableau 5 : Résultats financier de VALECO SAS

[1] A la fin juin.

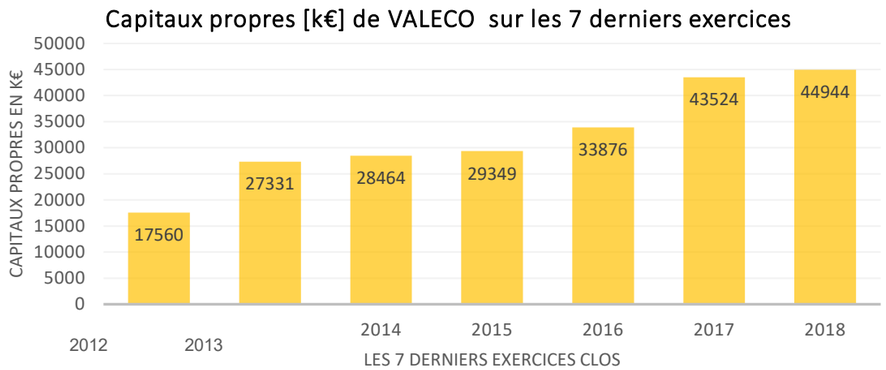


Figure 5 : Capitaux propres de VALECO sur les 7 derniers exercices

En outre, les bilans comptables des trois dernières années de la société de la société VALECO ainsi que les principales données financières du groupe EnBW Energie Baden-Württemberg AG sont présentés en annexes.

Remarque : le rapport annuel 2018 complet est téléchargeable sur le site internet de la société : https://www.enbw.com/integrated-annual-report-2018/further-information/download-center/

Caractéristiques

	Nb éoliennes	Puissance installée	Productible P50	Montant immobilisé	Montant immobilisé
Unité	unités	en MW	en heures éq.	en EUR/MW	en EUR
Parc	3	12,60	2 400	1 400 000	17 640 000

Tarif éolien (l/MWh)	62
Coefficient L (Indice inflation électricité)	1,20%
Taux emprunt	2,50%
Durée prêt	15,00
% de fonds propres	20%

Compte d'exploitation	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Chiffre d'affaires		937 440	1 897 379	1 920 147	1 943 189	1 966 507	1 990 105	2 013 986	2 038 154	2 062 612	2 087 364	2 112 412	2 137 761	2 163 414	2 189 375	2 215 647	2 342 089	2 490 782	2 540 598	2 591 410	2 643 238	1 348 051
Charges d'exploitation		-248 850	-509 147	-520 857	-532 837	-545 092	-557 630	-570 455	-583 576	-596 998	-610 729	-624 775	-639 145	-653 846	-668 884	-684 268	-700 007	-716 107	-732 577	-749 427	-766 663	-392 148
dt frais de maintenance		-149 310	-305 488	-312 514	-319 702	-327 055	-334 578	-342 273	-350 145	-358 199	-366 437	-374 865	-383 487	-392 307	-401 330	-410 561	-420 004	-429 664	-439 546	-449 656	-459 998	-235 289
dt autres charges d'exploitation		-99 540	-203 659	-208 343	-213 135	-218 037	-223 052	-228 182	-233 430	-238 799	-244 291	-249 910	-255 658	-261 538	-267 554	-273 707	-280 003	-286 443	-293 031	-299 771	-306 665	-156 859
Montant des impôts et taxes hors IS		-77 756	-126 978	-127 135	-127 296	-127 461	-127 629	-127 801	-127 977	-128 157	-128 341	-128 530	-128 722	-128 919	-129 121	-129 327	-130 350	-131 619	-132 060	-132 518	-132 993	-123 686
Excédent brut d'exploitation		610 834	1 261 253	1 272 154	1 283 056	1 293 954	1 304 847	1 315 730	1 326 602	1 337 457	1 348 294	1 359 107	1 369 893	1 380 649	1 391 370	1 402 052	1 511 732	1 643 057	1 675 961	1 709 466	1 743 582	832 217
Dotations aux amortissements		-588 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-1 176 000	-588 000	0	0	0	0	0
Provision pour démantèlement		-7 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-14 000	-7 000	0	0	0	0	0
Résultat d'exploitation		**15 834**	**71 253**	**82 154**	**93 056**	**103 954**	**114 847**	**125 730**	**136 602**	**147 457**	**158 294**	**169 107**	**179 893**	**190 649**	**201 370**	**212 052**	**916 732**	**1 643 057**	**1 675 961**	**1 709 466**	**1 743 582**	**832 217**
Résultat financier		-176 400	-338 091	-318 069	-297 544	-276 502	-254 930	-232 816	-210 146	-186 905	-163 080	-138 655	-113 616	-87 947	-61 632	-34 655	-7 000	0	0	0	0	0
Résultat courant avant IS		**-160 566**	**-266 838**	**-235 915**	**-204 488**	**-172 548**	**-140 083**	**-107 086**	**-73 544**	**-39 448**	**-4 786**	**30 452**	**66 277**	**102 702**	**139 738**	**177 397**	**909 732**	**1 643 057**	**1 675 961**	**1 709 466**	**1 743 582**	**832 217**
Montant de l'impôt sur les sociétés		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Résultat net après impôt		**-160 566**	**-266 838**	**-235 915**	**-204 488**	**-172 548**	**-140 083**	**-107 086**	**-73 544**	**-39 448**	**-4 786**	**30 452**	**66 277**	**102 702**	**139 738**	**177 397**	**909 732**	**1 643 057**	**1 675 961**	**1 709 466**	**1 743 582**	**832 217**
Capacité d'autofinancement		434 434	923 162	954 085	985 512	1 017 452	1 049 917	1 082 914	1 116 456	1 150 552	1 185 214	1 220 452	1 256 277	1 292 702	1 329 738	1 367 397	1 504 732	1 643 057	1 675 961	1 709 466	1 743 582	832 217
Flux de remboursement de dette		-390 600	-795 908	-815 930	-836 456	-857 498	-879 069	-901 183	-923 853	-947 094	-970 920	-995 344	-1 020 383	-1 046 052	-1 072 367	-1 099 344	-560 000	0	0	0	0	0
Flux de trésorerie disponible		43 834	127 254	138 155	149 056	159 955	170 848	181 731	192 603	203 458	214 294	225 108	235 894	246 650	257 371	268 053	944 733	1 643 057	1 675 961	1 709 466	1 743 582	832 217

Les charges d'exploitation comprennent l'ensemble des charges courantes encourues pendant la phase d'exploitation, notamment les loyers, les assurances, les frais de maintenance et de réparation, les coûts de gestion technique et administrative et les frais liés au respect des différentes obligations réglementaires comme, par exemple, la constitution des garanties pour démantèlement et les suivis environnementaux.

Tableau 6 : Plan d'affaire prévisionnel de la SAS PE des Lavières (source : VALECO, 2020)

Echéancier dette bancaire

Semestre 1		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
solde initial S1		13 721 400	12 925 493	12 109 563	11 273 107	10 415 610	9 536 541	8 635 358	7 711 504	6 764 410	5 793 490	4 798 146	3 777 763	2 731 711	1 659 343	560 000
Remboursements S1		-395 482	-405 431	-415 630	-426 086	-436 804	-447 793	-459 058	-470 606	-482 444	-494 581	-507 023	-519 778	-532 853	-546 258	-560 000
solde final S1		13 325 918	12 520 062	11 693 933	10 847 022	9 978 805	9 088 748	8 176 300	7 240 898	6 281 966	5 298 909	4 291 123	3 257 985	2 198 857	1 113 086	0
intérêts S1		-171 518	-161 569	-151 370	-140 914	-130 195	-119 207	-107 942	-96 394	-84 555	-72 419	-59 977	-47 222	-34 146	-20 742	-7 000
Semestre 2	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	
solde initial S2	14 112 000	13 325 918	12 520 062	11 693 933	10 847 022	9 978 805	9 088 748	8 176 300	7 240 898	6 281 966	5 298 909	4 291 123	3 257 985	2 198 857	1 113 086	
Remboursements S2	-390 600	-400 426	-410 499	-420 825	-431 412	-442 265	-453 390	-464 796	-476 488	-488 475	-500 763	-513 361	-526 275	-539 514	-553 086	
solde final S2	13 721 400	12 925 493	12 109 563	11 273 107	10 415 610	9 536 541	8 635 358	7 711 504	6 764 410	5 793 490	4 798 146	3 777 763	2 731 711	1 659 343	560 000	
intérêts S2	-176 400	-166 574	-156 501	-146 174	-135 588	-124 735	-113 609	-102 204	-90 511	-78 525	-66 236	-53 639	-40 725	-27 486	-13 914	

Tableau 7 : Echéancier de la dette bancaire de la SAS PE des Lavières (source : VALECO, 2020)

5 PROJET ARCHITECTURAL

5.1. Localisation du site et identification cadastrale

5.1.1. Localisation du site

Le projet éolien des Lavières, composé de 3 aérogénérateurs et de 1 poste de livraison, est localisé sur le territoire communal de Condes, dans le département de la Haute-Marne. Cette commune est localisée dans la région Grand Est.

Le territoire d'implantation des éoliennes est situé à environ 4,9 km au nord du centre-ville de Chaumont, à 55 km au sud du centre-ville de Saint-Dizier et à 81 km à l'est du centre-ville de Troyes.

5.1.2. Identification cadastrale et foncière

Les parcelles concernées par l'activité de production d'électricité à partir de l'énergie mécanique du vent sont présentées dans le tableau ci-contre. Ces parcelles sont maîtrisées par le Maître d'Ouvrage via des promesses de bail emphytéotique et/ou des promesses de convention de servitudes (voir attestations de maîtrise foncière en annexe 10.3 du présent dossier).

Les terrains destinés à l'implantation du projet (éoliennes, postes de livraison et raccordement électrique enterré) sont tous situés en zone de plaine. Ces terrains sont à caractère exclusivement agricole.

La superficie cadastrale concernée par la présente demande est de 9 014, 5 m² (3 éoliennes, leurs plateformes, les pistes créées et un poste de livraison – hors chemins à renforcer dont les terrains ne subissent pas de modifications d'usage).

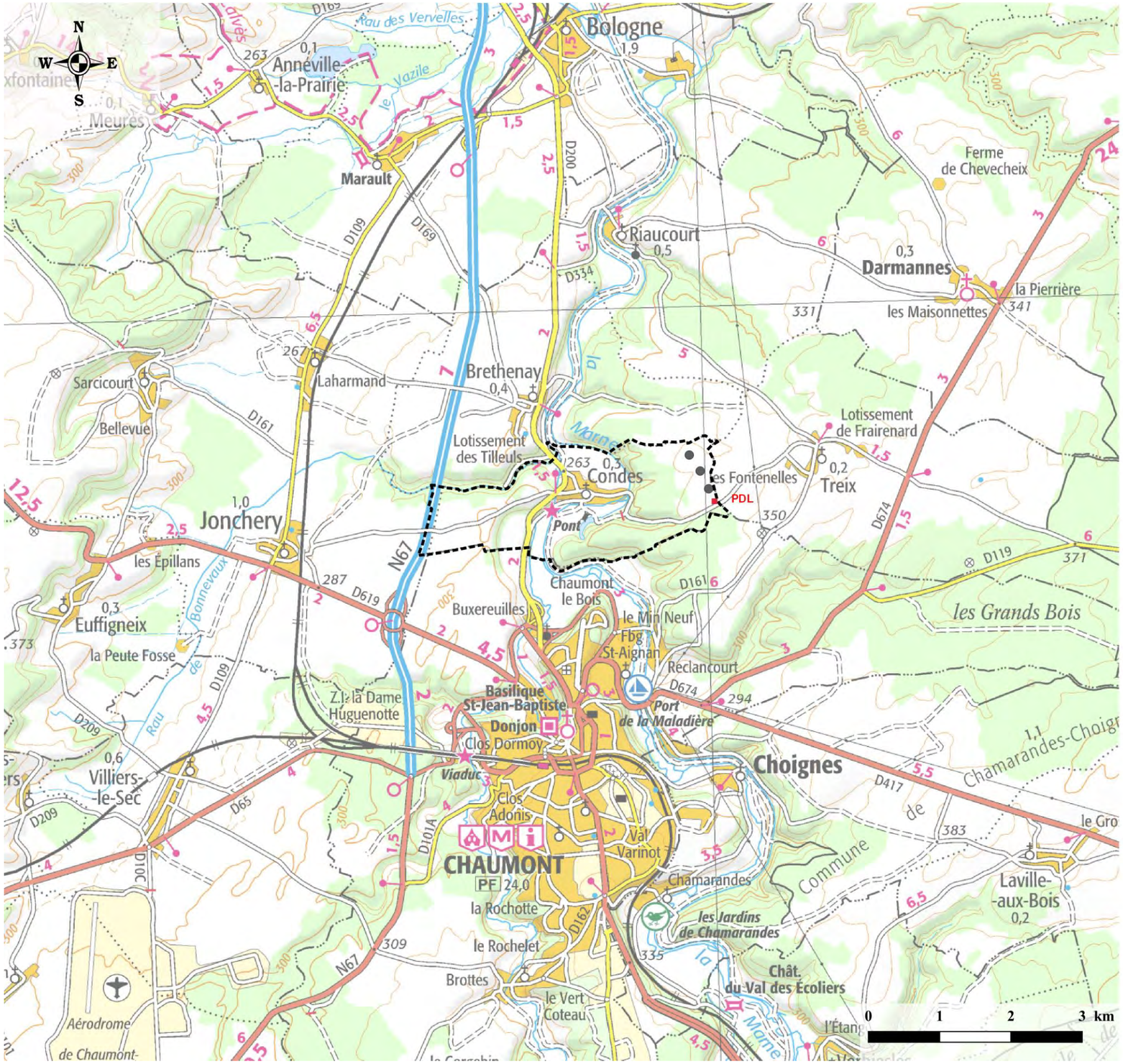
L'emprise foncière du projet se situe exclusivement sur des parcelles privées.

Conformément à l'article R. 181-13 modifié et l'alinéa 9 de l'article D. 181-15-2 du Code de l'Environnement, la demande d'autorisation environnementale comprend les éléments suivants (fournis dans une pochette cartonnée nommée « Plans réglementaires ») :

- Localisation du site et identification cadastrale sur un plan de situation du projet à l'échelle 1/25 000e ou à défaut 1/50 000e, localisant l'installation projetée ;
- Plan d'ensemble à l'échelle de 1/200e au minimum indiquant les dispositions projetées de l'installation ainsi que l'affectation des constructions et terrains avoisinants et le tracé de tous les réseaux enterrés existants. Une échelle réduite peut, à la requête du pétitionnaire, être admise par l'administration. Ainsi pour le présent projet sera appliquée une échelle de 1/1 500 pour les plans d'ensemble, ainsi qu'une échelle au 1/2 500 pour les plans réglementaires (voir la lettre de demande de dérogation d'échelle en annexe 9.7 du présent document).

Dénomination	Commune	Lieu-Dit	Section	Numéro	Superficie parcelle
E1	Condes	Le Poirier aux ânes	YB	23	116 021 m²
E2	Condes	Le Poirier aux ânes	YB	24	99 647 m²
E3	Condes	La Femme Morte	YB	21	182 489 m²
PdL	Condes	La Femme Morte	YB	20	17 489 m²

Tableau 8 : Identification des parcelles cadastrales – PdL : Poste de livraison (source : VALECO 2020)



Localisation géographique

ATER Environnement
Aménagement du Territoire - Energies Renouvelables

Août 2020

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Légende

Parc éolien des Lavières

Limite communale

Eolienne

Poste de livraison

Localisation du projet

Carte 4 : Localisation générale du projet

5.2. Occupation du sol sur le site

5.2.1. La zone demandée à l'exploitation

Les parcelles demandées à l'exploitation sont actuellement exploitées en zone agricole. Seule une partie de ces dernières pour une superficie de 1 800 à 2 030 m² par éolienne et 30 m² pour le poste de livraison (plateformes permanentes) sera concernée par l'implantation du parc éolien des Lavières. Lors de l'exploitation du parc, la superficie non cultivable est donc de 5 964,5 m² pour les plateformes de l'ensemble du parc, auquel s'ajoutent 3 250 m² de chemins et accès à créer.

5.2.2. Les abords du site

L'habitat est relativement dispersé autour des éoliennes dans les communes de Brethenay, Chaumont, Condes Riaucourt et Treix. Ainsi, le parc projeté est éloigné des zones urbanisées de :

- **Territoire de Condes :**
  - Zone urbaine à 856 m de E1, à 958 m de E2 et à 1 083 m de E3 ;
  - Première habitation à 877 m de E1 ;
- **Territoire de Brethenay :**
  - Première habitation à 2 078 m de E1 ;
- **Territoire de Treix :**
  - Zone urbaine à 1 134 m de E3, à 1 212 m de E2 et à 1 360 m de E1 ;
  - Première habitation à 1 213 m de E3 ;
- **Territoire de Chaumont**
  - Lieu-dit « La Fontaine aux Chênes », première habitation à 861 m de E3 ;
  - Lieu-dit « La Grande Lavières », première habitation à 844 m de E3 ;
- **Territoire de Riaucourt :**
  - Première habitation à 1 446 m de E1 ;

La première habitation ou limite de zone destinée à l'habitation est donc située à 844 m de l'éolienne E3, sur le territoire communal de Chaumont.

5.3. Notice de présentation du projet

5.3.1. Le projet dans son environnement

Description par rapport au réseau urbain

Aux alentours immédiats du site, le réseau urbain se caractérise principalement par des communes de petite taille telles que Brethenay, Condes, Riaucourt et Treix. Cependant, la commune de Chaumont, préfecture de la Haute-Marne et plus grande ville des environs est présente à moins de 5 km au sud. Le reste du réseau urbain se compose de petites communes éparses à dominante rurale.

Description par rapport aux voies d'accès

Le projet est localisé à proximité de la voie communale qui relie Condes à Treix, à 222 m au sud de l'éolienne E3 et de plusieurs chemins agricoles. Quelques routes départementales secondaires évoluent à proximité du projet, les plus proches étant :

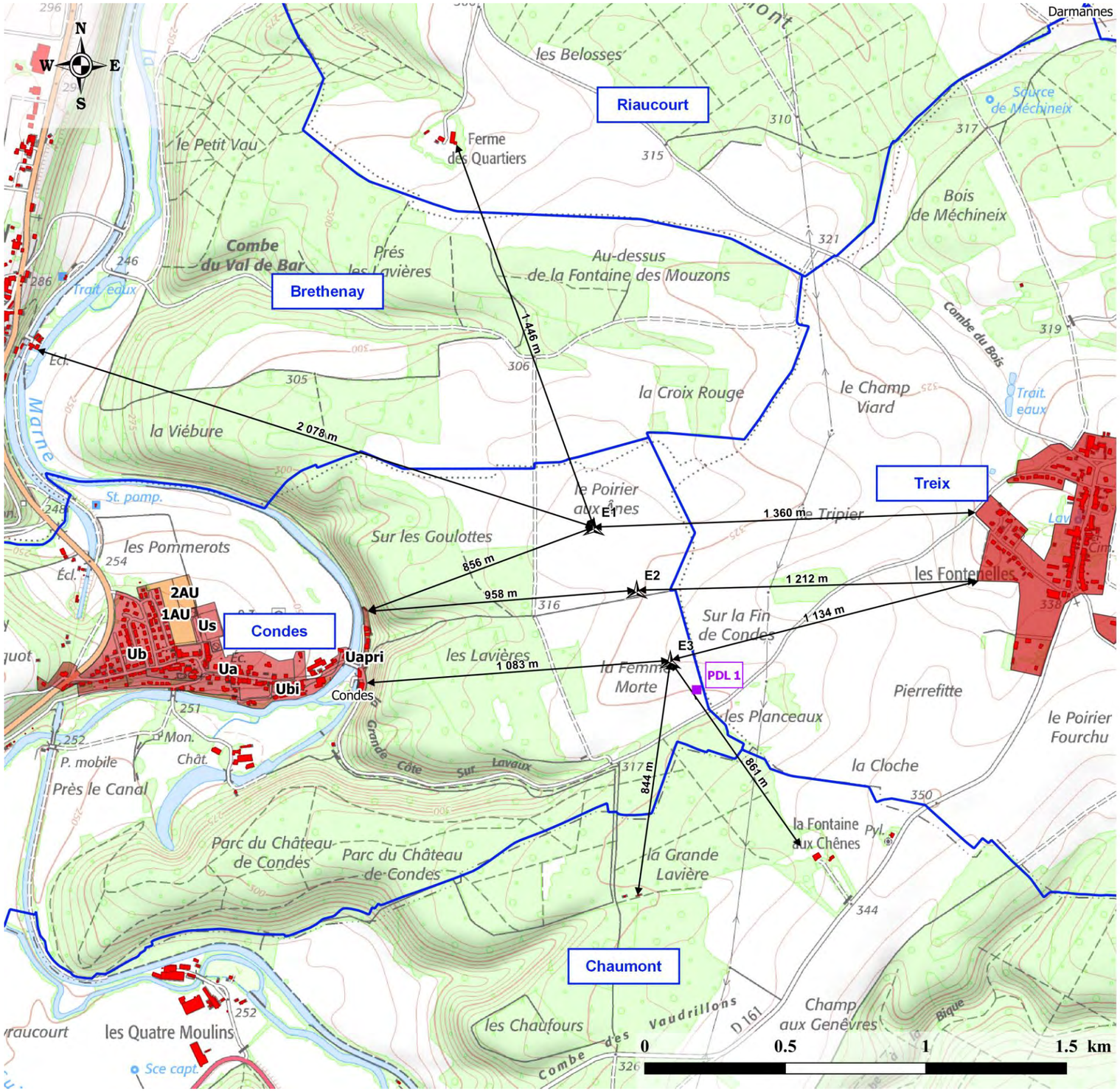
- La route départementale 161, au plus proche à 1 km de l'éolienne E3 ;
- La route départementale 200, au plus proche à 1,7 km de E1.

Description des constructions existantes

Dans un périmètre de 500 mètres autour des éoliennes, il n'existe aucune habitation. L'habitation la plus proche du parc éolien est située au lieu-dit la Grande Lavière, située à 844 m de l'éolienne E3, sur la commune de Chaumont (voir Carte 5 : Distance des éoliennes aux premières habitations).

Description de la végétation et des éléments paysagers existants

Le paysage immédiat est partagé entre les vallées de la Marne et de la Suize, ainsi que les plateaux agricoles et boisés d'Ageville. La zone d'implantation potentielle est cadrée par les versants boisés de la vallée de la Marne à l'ouest, par la végétation de la combe du Val de Bar au nord et par le parc du château de Condes au sud.



Distance aux habitations

ATER Environnement
Aménagement du Territoire - Energies Renouvelables

Juillet 2020

Sources : IGN 125®, georaportail de l'urbanisme
DREAL Grand-Est
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Légende

Limites territoriales

Limite communale

Parc éolien des Lavières

Eolienne

Poste de livraison

Urbanisme

Zone à urbaniser

Zone urbaine

Habitation

Distances aux habitations et aux zones urbanisées et urbanisables

Carte 5 : Distance des éoliennes aux premières habitations

Vues du projet

Les photos suivantes illustrent l'environnement initial proche et lointain du projet.

Figure 6 : Vue lointaine de l'environnement initial du projet des Lavières – Point de vue le sud depuis le sud-ouest d'Euffigneix sur la RD 209 (source : ABIES, 2020)

Figure 7 : Vue proche de l'environnement initial du projet des Lavières – Point de vue depuis l'est de Riaucourt (source : ABIES, 2020)

5.3.2. Présentation du projet

Le projet et ses composantes techniques

Caractéristiques générales d'un parc éolien

Un parc éolien est une centrale de production d'électricité fonctionnant à partir de l'énergie du vent. Il est composé de plusieurs aérogénérateurs et de leurs annexes :

- Plusieurs éoliennes fixées sur une fondation adaptée, accompagnée d'une aire stabilisée appelée « plateforme » ou « aire de grutage » ;
- Un réseau de câbles électriques enterrés permettant d'évacuer l'électricité produite par chaque éolienne vers une ou plusieurs structure(s) de livraison. Chaque structure est composée d'un poste de livraison électrique. Ce réseau est appelé « réseau inter-éolien » ;
- Une ou plusieurs structures de livraison électrique, concentrant l'électricité des éoliennes et organisant son évacuation vers le réseau public d'électricité au travers d'un ou plusieurs postes sources locaux (point d'injection de l'électricité sur le réseau public) ;
- Un réseau de câbles enterrés permettant d'évacuer l'électricité regroupée au poste de livraison vers le poste source (appelé « réseau externe » et appartenant le plus souvent au gestionnaire du réseau de distribution d'électricité) ;
- Un réseau de chemins d'accès ;
- Éventuellement des éléments annexes type mât de mesure de vent, aire d'accueil du public, aire de stationnement, etc.

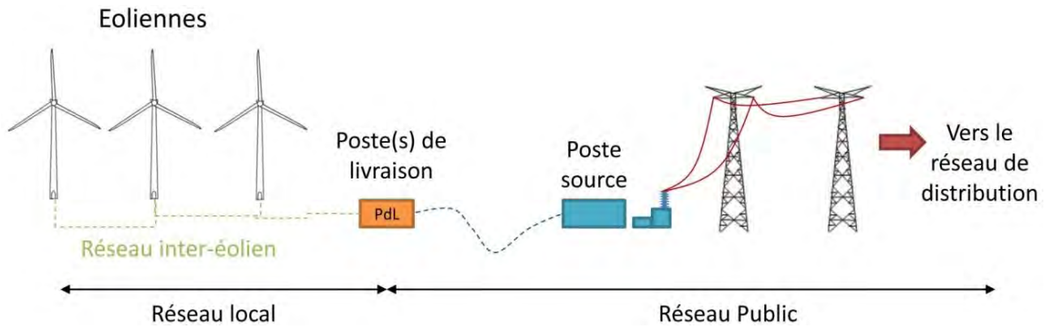

Figure 8 : Fonctionnement d'un parc éolien
(source : SER-FEE, guide technique de l'étude de dangers, 2015)

Au sens du l'arrêté du 26 août 2011 modifié par l'arrêté du 22 juin 2020 relatif aux installations de production d'électricité utilisant l'énergie mécanique du vent au sein d'une installation soumise à autorisation au titre de la rubrique 2980 de la législation des Installations Classées pour la Protection de l'Environnement, les aérogénérateurs (ou éoliennes) sont définis comme un dispositif mécanique destiné à convertir l'énergie du vent en électricité, composé des principaux éléments suivants :

- **Le rotor** qui est composé de trois pales (pour la grande majorité des éoliennes actuelles) construites en matériaux composites et réunies au niveau du moyeu. Il se prolonge dans la nacelle pour constituer l'arbre lent ;
- **Le mât** est généralement composé de 3 à 5 tronçons en acier ou de 15 à 20 anneaux de béton surmontés d'un ou plusieurs tronçons en acier. Dans la plupart des éoliennes, il abrite le transformateur qui permet d'élever la tension électrique de l'éolienne pour le transport de l'énergie sur le réseau électrique ;
- **La nacelle** abrite plusieurs éléments fonctionnels :
  - ✓ Le générateur transforme l'énergie de rotation du rotor en énergie électrique ;
  - ✓ Le multiplicateur (certaines technologies n'en utilisent pas) ;
  - ✓ Le système de freinage mécanique ;
  - ✓ Le système d'orientation de la nacelle qui place le rotor face au vent pour une production optimale d'énergie ;
  - ✓ Les outils de mesure du vent (anémomètre, girouette) ;
  - ✓ Le balisage diurne et nocturne nécessaire à la sécurité aéronautique.

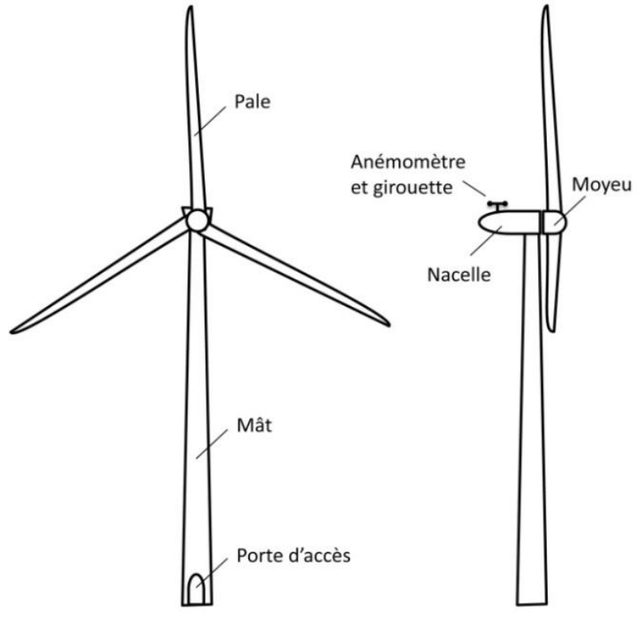

Figure 9 : Schéma simplifié d'un aérogénérateur
(source : SER-FEE, guide technique de l'étude de dangers, 2015)

Les éoliennes du parc éolien des Lavières

Le parc éolien des Lavières est composé de 3 éoliennes de puissance nominale maximale de 4,2 MW. La puissance maximale totale du parc est donc de 12,6 MW.

VALECO, en tant qu'entreprise dépendant d'une société dont la majeure partie des capitaux appartiennent à des fonds publics, doit se soumettre à la directive européenne 2014/25/UE visant à garantir le respect des principes de mise en concurrence, d'égalité de traitement des fournisseurs, et de transparence pour tout achat de matériels et services destinés à ses sociétés de projet de construction, dès lors que ces achats sont liés à leur activité de production d'électricité. Cette directive s'applique aux marchés de travaux d'une valeur supérieure à 5 000 000 € et aux marchés de fournitures et de services d'une valeur supérieure à 400 000 €[2] de la SPV, tels que la fourniture et l'installation d'éoliennes. Afin de garantir le principe de mise en concurrence des fabricants d'éoliennes, aucun nom de fabricant ne sera présenté dans ce dossier, et les éoliennes seront définies par leurs dimensions principales. Pour cette raison également, lorsque plusieurs éoliennes présentent des grandeurs équivalentes, il a été choisi de retenir la grandeur maximale dans les impacts, dangers et inconvénients de l'installation pour ne pas risquer de les sous-évaluer.

Pour chacun des paramètres, la plus grande valeur des modèles éligibles pour le projet a été choisie. L'ensemble de ces caractéristiques permet de définir les dimensions d'une éolienne dont les paramètres sont, au vu de tous les enjeux, les plus impactant des modèles éligibles.

Les principales caractéristiques des éoliennes sont données dans le tableau ci-après.

Elément de l'installation	Fonction	Caractéristiques
Fondation	*Ancrer et stabiliser l'éolienne dans le sol*	▪ En béton armé, de forme circulaire ; ▪ Dimension : conforme à la norme IEC – design adapté en fonction des études géotechnique et hydrogéologique réalisées avant la construction. En standard, 15 à 22 m de diamètre ; ▪ Profondeur : en standard, 3 à 5 m.
Mât	*Supporter la nacelle et le rotor*	▪ Tubulaire en acier ou béton (ou hybride) ; ▪ Hauteur maximale au moyeu de 120 mètres ; ▪ Composé de 3 à 5 pièces ; ▪ Revêtement multicouche résine époxy ; ▪ Cage d'ancrage noyée dans le béton de fondation ; ▪ Accès : porte verrouillable au pied du mât, échelle d'accès à la nacelle, élévateur de personnes.
Nacelle	*Supporter le rotor* *Abriter le dispositif de conversion de l'énergie mécanique en électricité (génératrice, etc.) ainsi que les dispositifs de contrôle et de sécurité*	▪ Un arbre en rotation, entrainé par les pales ; ▪ Hauteur maximale au sommet de la nacelle : ▪ Le multiplicateur, si présent, à engrenage cylindrique à 3 trains planétaires, a pour objectif d'augmenter le nombre de rotation de l'arbre : 18,5 tours / minute côté rotor – Tension nulle ; ▪ La génératrice annulaire, asynchrone ou à attaque directe, à double alimentation, qui fabrique l'électricité – Tension de 690 à 950 V ; ▪ Composition : structure métallique habillée de panneaux en fibre de verre, fenêtres de toit permettant d'accéder à l'intérieur.
Rotor / pales	*Capter l'énergie mécanique du vent et la transmettre à la génératrice*	▪ Orientation active des pales face au vent ; ▪ Sens de rotation : sens horaire ; ▪ 3 par machine ; ▪ Longueur maximale : 70 m à l'axe du moyeu ; ▪ Poids : 12 t environ ; ▪ Contrôle de survitesse : Pitch électromotorisé indépendant sur chaque pale ;
Systèmes de freinage	*Freine et arrête la machine en cas de maintenance, vent fort ou survitesse*	▪ Frein principal aérodynamique : Orientation individuelle des pales par activation électromagnétique avec alimentation de secours ; ▪ Frein auxiliaire mécanique : Frein à disque à actionnement actif sur l'arbre rapide.
Transformateur	*Elever la tension de sortie de la génératrice avant l'acheminement du courant électrique par le réseau*	▪ A l'intérieur du mât ; ▪ Tension de 20 kV à la sortie.
Poste de livraison	*Adapter les caractéristiques du courant électrique à l'interface entre le réseau privé et le réseau public*	▪ Equipé de différentes cellules électriques et automates qui permettent la connexion et la déconnexion du parc éolien au réseau 20 kV et le comptage de l'électricité fournie.

Tableau 9 : Caractéristiques techniques des aérogénérateurs selon le tableau type de l'INERIS/SER/FEE, 2012

Les fûts métalliques composant les mâts des éoliennes ainsi que la nacelle et les pales seront de ton RAL 7035 « *gris clair* » (conformément à la réglementation aéronautique).

[2] Seuils actuellement applicables à compter du premier janvier 2012 par le règlement européen n°1251/2011 du 30 novembre 2011 et le décret n°2011-2027 du 29 décembre 2011, et réévalués par période de 2 ans.

Présentation de l'installation

ATER Environnement
Aménagement du Territoire - Energies Renouvelables

Juillet 2020

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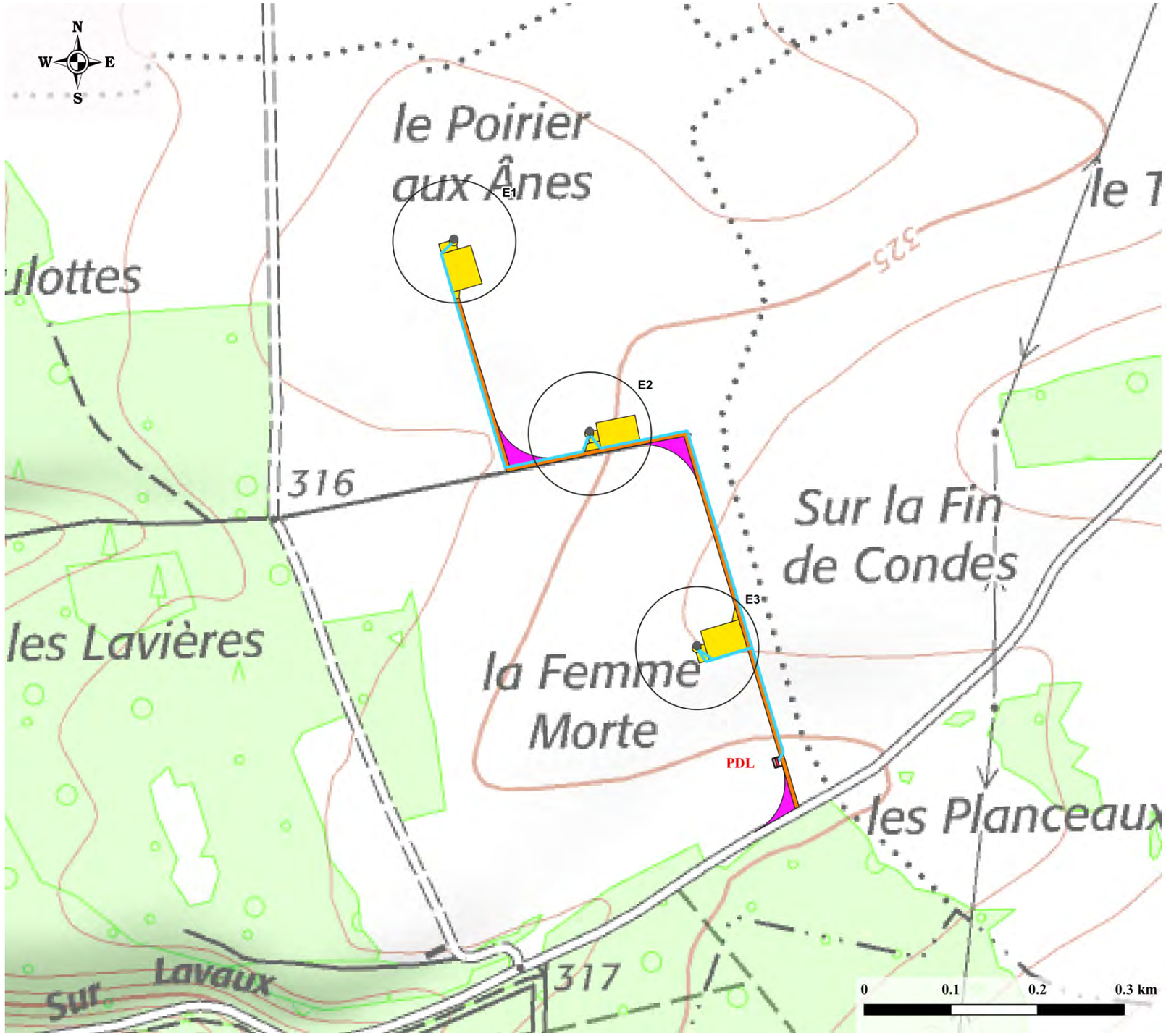


Légende

Parc éolien des Lavières

- Eolienne
- Plateforme de l'éolienne
- Zone de surplomb maximal par les pales (70,5 m)
- Poste de livraison
- Plateforme du poste de livraison
- Raccordement inter-éolien
- Chemin à créer
- Pan coupé

Carte 6 : Présentation de l'installation

Caractéristiques des postes de livraison

Un poste de livraison assure la connexion au réseau électrique de distribution et contient l'ensemble de l'appareillage de contrôle, de sécurité et de comptage de l'électricité. Ce poste de livraison est compris dans un local préfabriqué de 10 m de long par 3 m de large, soit une emprise au sol de 30 m².

Le raccordement électrique des éoliennes au poste de livraison est prévu via des lignes enterrées.

Les liaisons souterraines

Dans chaque éolienne, l'électricité produite au niveau de la génératrice sera transformée en 20 000 V par le transformateur situé à l'intérieur du mât, puis dirigée, via le raccordement souterrain interne au parc éolien, vers le poste de livraison correspondant.

Afin de réduire l'impact du projet sur le site, les câbles de liaison électrique entre chaque éolienne et le poste de livraison seront enfouis à une profondeur comprise entre 0,65 mètre et 1,2 mètre en fonction du terrain. Après enfouissement des câbles, les terrains seront remis en l'état d'origine. Il n'y aura donc pas de modification paysagère résultant de ces travaux de raccordement électrique : aucun pylône électrique ne sera construit.

Les plateformes et les chemins d'exploitation

L'exploitation des éoliennes suppose la réalisation au pied de chaque machine d'un accès permanent et d'une aire de grutage (plateforme) qui doit permettre d'intervenir à tout moment sur les éoliennes.

Les plateformes

Les plateformes permettent d'accueillir des grues à différentes étapes de la vie d'un parc éolien. En effet, l'assemblage de chaque aérogénérateur nécessite la mise en place d'une plateforme de montage destinée à accueillir la grue lors de la phase d'érection de la machine. Cette plateforme également le montage d'une grue en phase d'exploitation lors de maintenances lourdes.

Les plateformes nécessaires pour le montage des éoliennes seront parfaitement planes et horizontales. Pour les réaliser, le terrain naturel est excavé sur une profondeur de 40 cm environ. Cette excavation est ensuite comblée par des granulats calcaires, concassés et fortement tassés, de couleur claire.

Les chemins d'accès

Les chemins d'accès s'appuieront au maximum sur les chemins existants. Ils devront avoir une largeur minimale de 4,5 m afin de permettre le passage des convois exceptionnels. Ces chemins seront renforcés pour permettre le passage des véhicules quel que soit le temps, afin de permettre une maintenance efficace. Leur revêtement sera en pierres concassées et compactées.

Autres éléments du projet

Traitement des constructions, clôtures, végétation et aménagements en limite de terrain

Le mât de chaque éolienne sera fixé au sol par une lourde semelle en béton, fondation qui assurera l'ancrage et la stabilité de l'aérogénérateur. Les fondations des machines sont de forme circulaire, larges de 15 à 22 m si nécessaire à leur base et se resserrant jusqu'à 5 m de diamètre environ. Elles sont situées dans une fouille un peu plus large. La base des fondations est située entre 3 et 5 m de profondeur.

Les plateformes ne seront pas clôturées. Les aménagements veilleront à ne pas être attractifs pour l'avifaune et les chauves-souris.

Le caractère agricole du site d'implantation sera préservé et le postes de livraison fera l'objet d'une intégration paysagère particulière.

Implantation, organisation, composition et volume des constructions nouvelles, notamment par rapport aux constructions ou paysages avoisinants

Le projet de parc éolien des Lavières est constitué de 3 éoliennes d'une puissance unitaire maximale de 4,2 MW, soit 12,6 MW de puissance totale, et de 1 poste de livraison. Les éoliennes sont disposées en une ligne de 3 éoliennes, suivant globalement une orientation nord-ouest / sud-est.

Les infrastructures du projet sont situées sur des parcelles agricoles.

Traitement des espaces libres, notamment les plantations

La réalisation du projet est faite de telle façon à ce qu'il n'y ait pas de déboisement ou défrichement nécessaire.

Les plateformes et les chemins seront encaillouté afin d'éviter la mise en place de végétation potentiellement attractive pour les rongeurs et les oiseaux.

Organisation et aménagement des accès aux terrains, aux constructions et aux aires de stationnement

Il sera prévu d'encaillouter les plateformes et les chemins lorsque cela n'a pas déjà été fait. En effet, certains chemins ruraux devront faire l'objet de renforcements. L'accès aux éoliennes se fera au maximum par les voies communales et les chemins ruraux existants. Pour les chemins à prolonger ou à créer, les tracés ont été établis en prenant en compte la forme des parcelles de manière à minimiser leurs linéaires et à modifier le moins possible les pratiques agricoles.

6 LES ACTIVITES EXERCEES SUR LE SITE

6.1. Présentation de l'activité

Au sens du l'arrêté du 26 août 2011 modifié par l'arrêté du 22 juin 2020 relatif aux installations de production d'électricité utilisant l'énergie mécanique du vent au sein d'une installation soumise à autorisation au titre de la rubrique 2980 de la législation des Installations Classées pour la Protection de l'Environnement, les aérogénérateurs (ou éoliennes) sont définis comme **un dispositif mécanique destiné à convertir l'énergie du vent en électricité**, composé des principaux éléments suivants : un mât, une nacelle, le moyeu auquel sont fixées les pales, ainsi que, le cas échéant, un transformateur.

Ainsi, l'objet du présent projet est l'exploitation des Lavières permettant de produire de l'électricité qui sera injectée sur le réseau public.

Le parc éolien des Lavières est composé de 3 aérogénérateurs et de 1 poste de livraison. Les principales caractéristiques techniques des éoliennes choisies sont fournies dans le tableau ci-après.

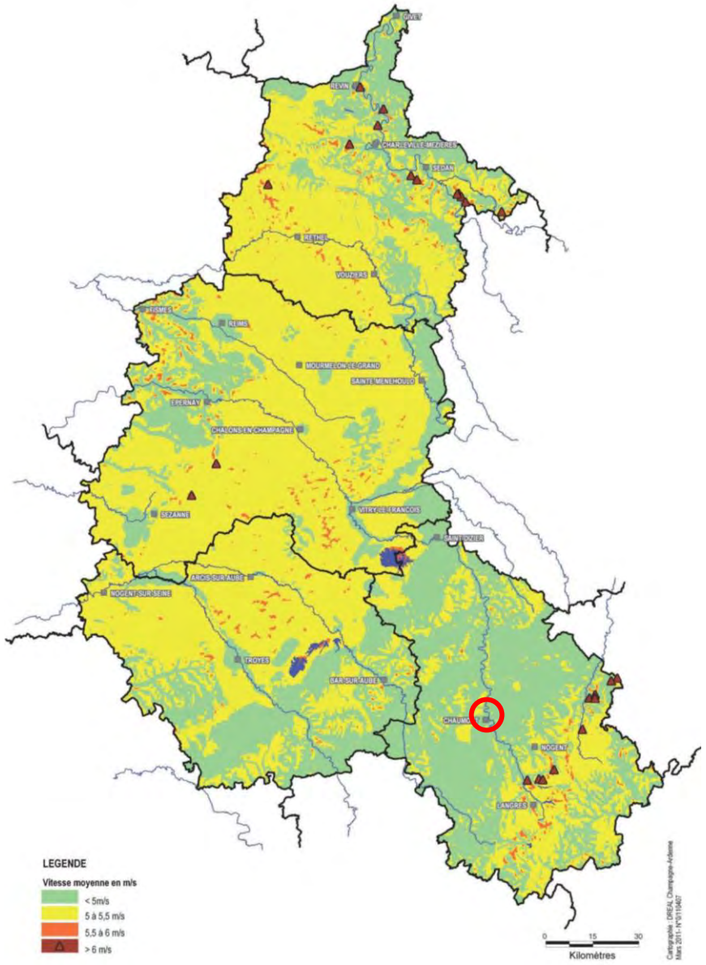
Tout en prenant en compte les contraintes propres au projet (paysage, biodiversité, acoustique, sécurité, etc.), le modèle d'éolienne a été défini afin de garantir l'électricité la moins chère pour les citoyens et la plus compétitive possible, dans le cadre du nouveau processus d'appel d'offres pour l'éolien terrestre. Il correspond à une optimisation de la production au regard des conditions de vent du site.

Modèle	Gabarit maximisant
Diamètre rotor	141 m
Hauteur moyeu	120 m
Hauteur mât	120 m
Diamètre base pale	2,9 m
Diamètre base mât	7 m
Hauteur totale machine	186 m
Puissance nominale	4,2 MW

Tableau 10 : Principales caractéristiques des éoliennes (source : VALECO, 2020)

6.2. Nature et caractéristiques du gisement éolien

D'après le Schéma Régional Eolien de l'ancienne région Champagne-Ardenne, le site du projet éolien des Lavières bénéficie de vents dont la vitesse est inférieure à 5 m/s à 50 m d'altitude.



Carte 7 : Gisement éolien local, à 50 m d'altitude – Cercle rouge : Localisation du site (source : SRCAE, 2012)

Un mât de mesure du vent de 120 m de hauteur a été installé sur site à Condes à partir de novembre 2019. Il est actuellement toujours présent sur le site. Le mât est équipé de 6 anémomètres et 3 girouettes à différentes hauteurs pour analyser finement le gisement éolien (force, direction, etc.). La vitesse moyenne mesurée à 120 m de hauteur avoisine les 6,3 m/s. Ces données confirment le potentiel éolien à l'échelle du secteur d'étude.

6.3. Volume de l'activité

La production attendue d'après les projections réalisées à partir des données issues du mât de mesure des vents et après prise en compte des différentes pertes (électrique, disponibilité, bridages éventuels…) est de 13 200 MWh/an pour un parc de 3 éoliennes dont la puissance unitaire maximale est de 4,2 MW.

Nature des activités	Installations terrestres de production d'électricité à partir de l'énergie mécanique du vent (selon gabarit maximisant)
Volume des activités	Nombre d'aérogénérateurs : 3 Hauteur au moyeu : 120 m Diamètre de rotor : 141 m Hauteur totale en bout de pale : 186 m Puissance unitaire : 4,2 MW Puissance totale installée : 12,6 MW
Classement des activités	Rubrique n°2980-1 Installation terrestre de production d'électricité à partir de l'énergie mécanique du vent et regroupant un ou plusieurs aérogénérateurs comprenant au moins un aérogénérateur dont la hauteur du mât et de la nacelle au-dessus du sol est supérieure ou égale à 50 m (A-6).

Tableau 11 : Nature, volume et classement des activités

6.4. Modalités d'exploitation

L'éolienne capte les vents à travers ses pales sur une hauteur comprise entre 45 et 186 m. Le vent entraîne les pales. Ainsi, l'énergie cinétique acquise par la vitesse du vent est transformée en énergie mécanique transmise à un arbre tournant.

Ensuite, cette énergie mécanique est transformée en énergie électrique par une génératrice qui crée le courant électrique. Ainsi, à la sortie, de l'électricité est produite à une tension comprise entre 690 et 950 V.

L'électricité est ensuite convertie via un transformateur électrique dans chaque éolienne en une tension de 20 000 V. Toutes les éoliennes sont reliées entre elles par un réseau électrique 20 000 V interne au parc jusqu'aux postes de livraison depuis lesquels l'électricité est évacuée vers le réseau de distribution.

6.5. Moyens de suivi et de surveillance

De nombreuses mesures de sécurité sont mises en œuvre dans l'éolienne. L'ensemble des dispositifs de sécurité sont détaillés dans un chapitre qui lui est dédié dans l'étude de dangers, jointe au dossier de demande d'Autorisation Environnementale.

6.5.1. Suivi et surveillance

Toutes les fonctions de l'éolienne sont commandées et contrôlées en temps réel par microprocesseur. Ce système de contrôle commande est relié aux différents capteurs qui équipent l'éolienne. Différents paramètres sont évalués en permanence, comme par exemple : tension, fréquence, phase du réseau, vitesse de rotation de la génératrice, températures, niveau de vibration, pression d'huile, usure des freins, données météorologiques, etc.

Les données de fonctionnement peuvent être consultées à partir d'un PC par liaison téléphonique. Cela permet au constructeur des éoliennes, à l'exploitant et à l'équipe de maintenance de se tenir informés en temps réel de l'état de l'éolienne.

6.5.2. Réseau de contrôle commande des éoliennes

Le système SCADA

Le réseau SCADA permet le contrôle à distance du fonctionnement des éoliennes. Ainsi, chaque éolienne dispose de son propre SCADA relié lui-même à un SCADA central qui a pour objectif principal :

- De regrouper les informations des SCADA des éoliennes ;
- De transmettre à toutes les éoliennes une information identique, en même temps, plutôt que de passer par chaque éolienne à chaque fois.

Ainsi en cas de dysfonctionnement (survitesse, échauffement) ou d'incident (incendie), l'exploitant est immédiatement informé et peut réagir. Dans le cas d'un dysfonctionnement du système de SCADA central, le contrôle de commande des éoliennes à distance est maintenu puisque ces machines disposent d'un SCADA qui leur est propre. Le seul inconvénient est qu'il faut donner l'information à chacune des éoliennes du parc. Dans le cas d'un dysfonctionnement du système SCADA propre à une éolienne, ce dernier entraîne l'arrêt immédiat de la machine. Ainsi, en cas de défaillance éventuelle du système SCADA de commande à distance, le parc éolien est maintenu sous contrôle soit via le système SCADA propre à la machine, soit par l'arrêt automatique de la machine.

Réseau de fibres optiques

Le système de contrôle de commande des éoliennes est relié par fibre optique aux différents capteurs. En cas de rupture de la fibre optique entre deux éoliennes, la transmission peut s'effectuer directement en passant par le SCADA propre à l'éolienne ou par le SCADA central. Il s'agit d'un système en anneau qui permet de garantir une communication continue des éoliennes.

6.5.3. Maintenance

La maintenance du parc éolien sera réalisée pour le compte du Maître d'Ouvrage par la société CWS qui appartient à 100 % au groupe EnBW.

La maintenance réalisée sur l'ensemble des parcs éoliens est de deux types :

- **Corrective** : Intervention sur la machine lors de la détection d'une panne afin de la remettre en service rapidement ;
- **Préventive** : Elle contribue à améliorer la fiabilité des équipements (sécurité des tiers et des biens) et la qualité de la production. Cette maintenance préventive se traduit par la définition de plans d'actions et d'interventions sur l'équipement, par le remplacement de certaines pièces en voie de dégradation afin d'en limiter l'usure, par le graissage ou le nettoyage régulier de certains ensembles.

6.6. Moyens d'intervention en cas d'incident ou d'accident

6.6.1. Moyens internes

Tous les composants mécaniques et électriques de l'éolienne dans lesquels un incendie pourrait potentiellement se déclencher en raison d'une éventuelle surchauffe ou d'un court-circuit sont continuellement surveillés par des capteurs lors du fonctionnement. Si le système de commande détecte un état non autorisé, l'éolienne est stoppée ou continue de fonctionner mais à puissance réduite.

Lors du déclenchement des alarmes incendie de la machine, une sirène se met en route dans la nacelle et la tour, une information est envoyée en moins de 15 minutes vers le centre de télésurveillance, les pompiers et l'exploitant. L'alerte provoque la mise à l'arrêt de la machine.

6.6.2. Moyens externes

Les moyens d'intervention de secours ou de lutte contre les incendies sont basés sur des moyens externes (sapeurs-pompiers). L'exploitant détermine un plan d'intervention en accord avec les services.

6.7. Nature, origine et volume des eaux utilisées ou affectées

Le fonctionnement des éoliennes ne nécessite pas d'apport en eau et aucun réseau d'eau n'est présent sur le site.

7 DEMANTELEMENT ET REMISE EN ETAT

Les éoliennes sont des installations dont la durée de vie est estimée à une vingtaine d'années. En fin d'exploitation, les éoliennes sont démantelées conformément à la réglementation.

Le démantèlement d'une éolienne est une opération techniquement simple qui consiste à :
- Démonter les machines, les enlever ;
- Enlever les postes de livraison et tout bâtiment affecté à l'exploitation ;
- Restituer un terrain propre et cultivable selon l'état initial.

Sauf intempéries, la durée de chantier du démontage est de 3 jours par éolienne, pour la machine proprement dite. L'élimination des fondations est plus longue, la destruction des massifs lorsqu'elle est nécessaire pouvant nécessiter des conditions de sécurité importantes (utilisation d'un brise-roche par exemple).

7.1. Contexte réglementaire

L'obligation de procéder au démantèlement est définie à l'article L.515-46 du Code de l'Environnement, créé par Ordonnance n°2017-80 du 26 janvier 2017, qui précise que :

« L'exploitant d'une installation produisant de l'électricité à partir de l'énergie mécanique du vent ou, en cas de défaillance, la société mère est responsable de son démantèlement et de la remise en état du site, dès qu'il est mis fin à l'exploitation, quel que soit le motif de la cessation de l'activité. Dès le début de la production, puis au titre des exercices comptables suivants, l'exploitant ou la société propriétaire constitue les garanties financières nécessaires.

Pour les installations produisant de l'électricité à partir de l'énergie mécanique du vent, classées au titre de l'article L. 511-2, les manquements aux obligations de garanties financières donnent lieu à l'application de la procédure de consignation prévue au II de l'article L. 171-8, indépendamment des poursuites pénales qui peuvent être exercées.

Un décret en Conseil d'Etat détermine, avant le 31 décembre 2010, les prescriptions générales régissant les opérations de démantèlement et de remise en état d'un site ainsi que les conditions de constitution et de mobilisation des garanties financières mentionnées au premier alinéa du présent article. Il détermine également les conditions de constatation par le préfet de département de la carence d'un exploitant ou d'une société propriétaire pour conduire ces opérations et les formes dans lesquelles s'exerce dans cette situation l'appel aux garanties financières ».

Ainsi dans le cadre du projet éolien des Lavières, la SAS PE des Lavières est responsable du démantèlement du parc. A ce titre, elle devra notamment constituer les garanties financières nécessaires et prévoir les modalités de ce démantèlement et de remise en état du site conformément à la réglementation en vigueur.

L'article R.553-6 du Code de l'Environnement précise que :
« Les opérations de démantèlement et de remise en état d'un site après exploitation comprennent :
- *Le démantèlement des installations de production ;*
- *L'excavation d'une partie des fondations ;*
- *La remise en état des terrains sauf si leur propriétaire souhaite leur maintien en l'état ;*
- *La valorisation ou l'élimination des déchets de démolition ou de démantèlement dans les filières dûment autorisées à cet effet.*

Un arrêté du ministre chargé de l'environnement fixe les conditions techniques de remise en état ».

L'arrêté du 26 août 2011, modifié par l'arrêté du 22 juin 2020, précise la nature des opérations de démantèlement et de remise en état du site :

- « *Les opérations de démantèlement et de remise en état prévues à l'article R. 515-106 du code de l'environnement comprennent :*
  - *Le démantèlement des installations de production d'électricité, des postes de livraison ainsi que les câbles dans un rayon de 10 mètres autour des aérogénérateurs et des postes de livraison ;*
  - *L'excavation de la totalité des fondations jusqu'à la base de leur semelle, à l'exception des éventuels pieux. Par dérogation, la partie inférieure des fondations peut être maintenue dans le sol sur la base d'une étude adressée au préfet démontrant que le bilan environnemental du décaissement total est défavorable, sans que la profondeur excavée ne puisse être inférieure à 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable et 1 m dans les autres cas. Les fondations excavées sont remplacées par des terres de caractéristiques comparables aux terres en place à proximité de l'installation ;*
  - *La remise en état du site avec le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.*
- *Les déchets de démolition et de démantèlement sont réutilisés, recyclés, valorisés, ou à défaut éliminés dans les filières dûment autorisées à cet effet.*

Au 1er juillet 2022, au minimum 90 % de la masse totale des aérogénérateurs démantelés, fondations incluses, lorsque la totalité des fondations sont excavées, ou 85 % lorsque l'excavation des fondations fait l'objet d'une dérogation prévue par le I, doivent être réutilisés ou recyclés.

Au 1er juillet 2022, au minimum, 35 % de la masse des rotors doivent être réutilisés ou recyclées.

Les aérogénérateurs dont le dossier d'autorisation complet est déposé après les dates suivantes ainsi que les aérogénérateurs mis en service après cette même date dans le cadre d'une modification notable d'une installation existante, doivent avoir au minimum :

- *Après le 1er janvier 2024, 95 % de leur masse totale, tout ou partie des fondations incluses, réutilisable ou recyclable ;*
- *Après le 1er janvier 2023, 45 % de la masse de leur rotor réutilisable ou recyclable ;*
- *Après le 1er janvier 2025, 55 % de la masse de leur rotor réutilisable ou recyclable.* »

L'arrêté du 26 août donne également des précisions sur les modalités de garanties financières. Le coût unitaire forfaitaire d'un aérogénérateur est fixé par les formules suivantes :

- **Lorsque la puissance unitaire installée de l'aérogénérateur est inférieure ou égale à 2 MW** : 50 000 € ;
- **Lorsque la puissance unitaire installée de l'aérogénérateur est supérieure à 2 MW** :

50 000 + 10 000 * (P-2), où P est la puissance unitaire installée de l'aérogénérateur en mégawatt.

L'article R.516-2 modifié par décret n°2015-1250 du 7 octobre 2015 du Code de l'Environnement précise que :

« Les garanties financières exigées à l'article L. 516-1 résultent, au choix de l'exploitant :

- *De l'engagement écrit d'un établissement de crédit, d'une société de financement, d'une entreprise d'assurance ou d'une société de caution mutuelle ;*
- *D'une consignation entre les mains de la Caisse des dépôts et consignations ;*
- *D'un fonds de garantie privé, proposé par un secteur d'activité et dont la capacité financière adéquate est définie par arrêté du ministre chargé des installations classées ; ou*
- *De l'engagement écrit, portant garantie autonome au sens de l'article 2321 du code civil, de la personne physique, où que soit son domicile, ou de la personne morale, où que se situe son siège social, qui possède plus de la moitié du capital de l'exploitant ou qui contrôle l'exploitant au regard des critères énoncés à l'article L. 233-3 du code de commerce. Dans ce cas, le garant doit lui-même être bénéficiaire d'un engagement écrit d'un établissement de crédit, d'une société de financement, d'une entreprise d'assurance, d'une société de caution mutuelle ou d'un fonds de garantie mentionné au d ci-dessus, ou avoir procédé à une consignation entre les mains de la Caisse des dépôts et consignations. »*

L'arrêté du 26 août 2011 modifié par l'arrêté du 22 juin 2020 fixe les modalités de cette remise en état.

7.2. Démontage des éoliennes

Rappelons qu'un parc éolien est constitué des éoliennes, mais également des fondations qui permettent de soutenir chaque aérogénérateur, des câbles électriques souterrains et des postes de livraison.

7.2.1. Démontage de la machine

Avant d'être démontées, les éoliennes en fin d'activité du parc sont débranchées et vidées de tous leurs équipements internes (transformateur, tableau HT avec organes de coupure, armoire BT de puissance, coffret fibre optique). Les différents éléments constituant l'éolienne sont réutilisés, recyclés ou mis en décharge en fonction des filières existantes pour chaque type de matériaux.

7.2.2. Démontage des fondations

Dans le cas présent, les sols étant à l'origine occupés par des cultures, la restitution des terrains doit se faire en ce sens.

La règlementation prévoit l'excavation de la totalité des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation. L'arrêté du 26 août 2011, modifié par l'arrêté du 22 juin 2020 prévoit une dérogation : « *la partie inférieure des fondations peut être maintenue dans le sol sur la base d'une étude adressée au préfet démontrant que le bilan environnemental du décaissement total est défavorable, sans que la profondeur excavée ne puisse être inférieure à 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable et 1 m dans les autres cas* ».

La réglementation prévoit également le **retrait des câblages enterrés sur une distance au moins égale à 10 m autour de chaque fondation**.

7.2.3. Recyclage d'une éolienne

Une éolienne est principalement composée des matériaux suivants : cuivre, fer, acier, aluminium, plastique, zinc, fibre de verre et béton (pour les fondations et le mât).

Dans une étude réalisée par un bureau d'étude danois (Danish Elsam Engineering 2004), il apparaît que 98% du poids des éléments constituant l'éolienne sont recyclables en bonne et due forme. En effet, il existe déjà des filières adaptées au recyclage des matériaux usuels tels que le cuivre, le fer ou l'acier.

Cas particulier des pales

Le recyclage des pales d'éoliennes est actuellement l'un des principaux axes de développement du recyclage des éoliennes. En effet, celles-ci sont principalement composées de fibres de verre, encore difficilement recyclables, bien que de nombreux acteurs se positionnent déjà sur le marché.

La solution la plus utilisée actuellement est l'incinération des pales (avec pour avantage de récupérer la chaleur produite), suivi de l'enfouissement des déchets résiduels dans des centres d'enfouissement pour des déchets industriels non dangereux de classe II. Toutefois, une nouvelle technique mise au point en 2017 offre une première alternative de recyclage : en fin de vie, les pales d'éoliennes sont découpées finement puis mélangés à d'autres matériaux afin de former de l'Ecopolycrete, matière utilisable dans d'autres domaines, tels que la fabrication de plaques d'égouts ou de panneaux pour les bâtiments.

Remarque : En amont, la fabrication de la fibre de verre s'inscrit dans un processus industriel de recyclage. Owens Corning, le plus grand fabricant de fibre de verre au monde, réutilise 40% de verre usagé dans la production de ce matériau.

D'autres solutions de recyclage ont également été expérimentées aux Pays-Bas, où des pales d'éoliennes ont été transformées afin de créer un parc de jeu pour enfants ainsi que des sièges publics ergonomiques.

Figure 10 : Aire de jeux pour enfants (©Denis Guzzo)

7.3. Démontage des infrastructures connexes

Dans le cas présent, les sols sont à l'origine occupés par des cultures.

Conformément à la législation rappelée ci-avant, tous les accès créés pour la desserte du parc éolien et les aires de grutage ayant été utilisés au pied de chaque éolienne seront supprimés. Ces zones sont décapées sur 40 cm de tout revêtement. Les matériaux sont retirés et évacués en décharge ou recyclés.

Leur remplacement s'effectue par des terres de caractéristiques comparables aux terres à proximité de l'installation. La terre végétale est remise en place et les zones de circulation labourées.

Toutefois, si le propriétaire du terrain sur lequel est sise l'installation souhaite le maintien de l'aire de grutage ou du chemin d'accès pour la poursuite de son activité agricole par exemple, ces derniers seront conservés en l'état.

7.4. Démontage des postes de livraison

L'ensemble des éléments des postes de livraison (enveloppe et équipement électrique) est chargé sur camion avec une grue et réutilisé/recyclé après débranchement et évacuation des câbles de connexions HT, téléphoniques et de terre. La fouille de fondation du poste est remblayée et de la terre végétale sera mise en place.

7.5. Démontage des câbles

Les dispositions de l'arrêté du 22 juin 2020 précisent que le démantèlement devra également porter sur les postes de livraison et les câbles de raccordement dans un rayon de 10 mètres autour des éoliennes et de chaque poste de livraison.

L'ensemble des avis de remise en état des maires et des propriétaires est fourni en annexes 10.5 et 10.6.

8 CONSTITUTION DES GARANTIES FINANCIERES

8.1. Cadre réglementaire

Le Législateur, conscient de la nécessité de prévoir un cadre légal afin d'assurer le démantèlement du parc ainsi que la remise en état du site, a prévu dans l'article R.515-101 du Code de l'environnement que : « *I. – La mise en service d'une installation de production d'électricité utilisant l'énergie mécanique du vent soumise à autorisation au titre du 2° de l'article L. 181-1 est subordonnée à la constitution de garanties financières visant à couvrir, en cas de défaillance de l'exploitant lors de la remise en état du site, les opérations prévues à l'article R. 515-106. Le montant des garanties financières exigées ainsi que les modalités d'actualisation de ce montant sont fixés par l'arrêté d'autorisation de l'installation* ».

Conformément à la règlementation, le Maître d'Ouvrage réalisera la constitution des garanties financières au moment de la mise en exploitation du parc éolien des Lavières. Aucune date ne peut être retenue étant donné que plusieurs paramètres sont à prendre en compte tels que la date de l'arrêté préfectoral autorisant le parc éolien ainsi que les recours qui peuvent survenir par la suite.

L'article R.516-2 modifié par décret n°2015-1250 du 7 octobre 2015 du Code de l'environnement précise que les garanties financières peuvent provenir d'un engagement d'un établissement de crédit, d'une assurance, d'une société de caution mutuelle, d'une consignation entre les mains de la Caisse des dépôts et consignations ou d'un fonds de garantie privé.

L'article L.515-46 du Code de l'environnement a ainsi pour objet de définir les conditions de constitution et de mobilisation de ces garanties financières, et de préciser les modalités de cessation d'activité d'un site regroupant des éoliennes.

En conséquence, **une garantie financière de démantèlement sera fournie au Préfet lors de la mise en service.** Le Préfet pourra alors, en cas de faillite de l'exploitant, utiliser cette garantie afin de payer les frais de démantèlement et de remise en état du site.

8.2. Méthode de calcul de la garantie financière

Le montant des garanties financières est calculé conformément à l'annexe I de l'arrêté du 26 août 2011 modifié par l'arrêté du 22 juin 2020. La formule de calcul du montant des garanties financières pour les parcs éoliens est la suivante :

$$M = N \times C_u$$

Où :

M est le montant des garanties financières ;
N est le nombre d'unités de production d'énergie ; c'est-à-dire d'aérogénérateurs ;
C_u est le coût unitaire forfaitaire correspondant au démantèlement d'une unité, à la remise en état des terrains, à l'élimination ou à la valorisation des déchets générés. Ce coût est fixé à 50 000 € pour les éoliennes de 2 MW ou moins, et à 50 000 + 10 000*(P-2), où P représente la puissance unitaire en mégawatt, pour les aérogénérateurs d'une puissance supérieure à 2 MW.

Le montant des garanties financières sera établi à la mise en service du parc éolien. Aucune date ne peut être retenue étant donné que plusieurs paramètres sont à prendre en compte tels que la date de l'arrêté préfectoral autorisant le parc éolien.

Il est prévu à l'article 31 que l'exploitant actualise tous les cinq ans le montant de la garantie financière, par application de la formule suivante :

$$M_n = M \times \left(\frac{Index_n}{Index_0} \times \frac{1 + TVA}{1 + TVA_0}\right)$$

Où :

M_n est le montant exigible à l'année n ;
M est le montant obtenu par application de la formule mentionnée à l'annexe I ;
$Index_n$ est l'indice TP01 en vigueur à la date d'actualisation du montant de la garantie ;
$Index_0$ est l'indice TP01 en vigueur au 1er janvier 2011, fixé à 102,1807 calculé sur la base 20 ;
TVA est le taux de la taxe sur la valeur ajoutée applicable aux travaux de construction à la date d'actualisation de la garantie. A titre d'exemple, le taux de TVA pour l'année 2020 est de 20 % ;
TVA_o est le taux de la taxe sur la valeur ajoutée au 1er janvier 2011, soit 19,60 %.

La mise en service du parc éolien des Lavières sera donc subordonnée à la constitution des garanties financières destinées à couvrir son démantèlement et la remise en état du site. Elles prendront la forme d'un engagement écrit d'une société d'assurance capable de mobiliser, si nécessaire, les fonds permettant de faire face à la défaillance de l'exploitant.

8.3. Estimation des garanties

Le projet du parc éolien des Lavières est composé de 3 éoliennes. Le montant des garanties financières associé à la construction et à l'exploitation de ce projet est donc de :

M = 3 x (50 000 + 10 000 * (4,2-2)) = 216 000 €

Pour mémoire, l'indice TP01 était de **667,7** en janvier 2011.

Sa dernière valeur officielle est celle d'avril 2020 : **108,9** (JO du 17/07/2020) (changement de base depuis octobre 2014 signifiant un changement de référence moyenne de 2010 = 100), à réactualiser avec le coefficient de raccordement défini à 6,5345 par l'INSEE.

L'actualisation des garanties financières est de 6,58 %, à taux de TVA constant. Cette garantie sera réactualisée au jour de la décision du préfet puis tous les 5 ans conformément à l'arrêté du 22 juin 2020 modifiant l'arrêté du 26 août 2011.

A la date de rédaction de la présente demande d'autorisation (juillet 2020), le montant actualisé des garanties financières est donc précisément de :

M2020 = 3 éoliennes x (50 000 + 10 000 * (4,2-2)) x 1,0658 = 230 212,8 €

Ce montant est donné à titre indicatif. Il sera réactualisé avec l'indice TP01 en vigueur lors de la mise en service du parc éolien des Lavières. Le délai de constitution des garanties financières est d'au maximum 30 jours.

8.4. Modalités de constitution de la garantie

L'article R.516-2 modifié par décret n°2015-1250 du 7 octobre 2015 du Code de l'Environnement précise que :

« Les garanties financières exigées à l'article L. 516-1 résultent, au choix de l'exploitant :

- *De l'engagement écrit d'un établissement de crédit, d'une société de financement, d'une entreprise d'assurance ou d'une société de caution mutuelle ;*
- *D'une consignation entre les mains de la Caisse des dépôts et consignations ;*
- *D'un fonds de garantie privé, proposé par un secteur d'activité et dont la capacité financière adéquate est définie par arrêté du ministre chargé des installations classées ;*
  ou
- *De l'engagement écrit, portant garantie autonome au sens de l'article 2321 du code civil, de la personne physique, où que soit son domicile, ou de la personne morale, où que se situe son siège social, qui possède plus de la moitié du capital de l'exploitant ou qui contrôle l'exploitant au regard des critères énoncés à l'article L. 233-3 du code de commerce. Dans ce cas, le garant doit lui-même être bénéficiaire d'un engagement écrit d'un établissement de crédit, d'une société de financement, d'une entreprise d'assurance, d'une société de caution mutuelle ou d'un fonds de garantie mentionné au d ci-dessus, ou avoir procédé à une consignation entre les mains de la Caisse des dépôts et consignations. »*

La société VALECO a déjà, à plusieurs reprises, pris toutes les dispositions nécessaires pour permettre aux sociétés exploitantes de fournir la garantie financière de démantèlement lors de la mise en service industrielle d'autres parcs éoliens. Une lettre d'intention de constitution des garanties financières pour le parc des Lavières est présentée en annexes (voir annexe 9.8).

9 BIBLIOGRAPHIE / TABLE DES ILLUSTRATIONS

9.1. Bibliographie

- Schéma Régional Éolien de l'ancienne région Champagne-Ardenne (2012).

9.2. Liste des figures

9.3. Liste des tableaux

9.4. Liste des cartes

10 ANNEXES

10.1. Annexe 1 : KBIS de la SAS PE des Lavières

Greffe du Tribunal de Commerce de Montpellier
9 RUE DE TARRAGONE
34070 MONTPELLIER

N° de gestion 2020B01540

Code de vérification : nmIHOpIvi8
https://www.infogreffe.fr/controle

Extrait Kbis

EXTRAIT D'IMMATRICULATION PRINCIPALE AU REGISTRE DU COMMERCE ET DES SOCIETES
à jour au 24 novembre 2021

IDENTIFICATION DE LA PERSONNE MORALE

Immatriculation au RCS, numéro	883 462 558 R.C.S. Montpellier
Date d'immatriculation	18/05/2020
Dénomination ou raison sociale	**PE DES LAVIERES**
Forme juridique	Société par actions simplifiée
Capital social	500,00 Euros
- Mention n° 35625 du 08/09/2021	Continuation de la société malgré un actif net devenu inférieur à la moitié du capital social. Décision du 21/06/2021
Adresse du siège	188 Rue Maurice Béjart 34080 Montpellier
Activités principales	Toutes opérations industrielles et commerciales se rapportant à la gestion administrative financière et à l'exploitation d'installation de production d'électricité d'origine renouvelable.
Durée de la personne morale	Jusqu'au 17/05/2119
Date de clôture de l'exercice social	31 décembre
Date de clôture du 1er exercice social	31/12/2020

GESTION, DIRECTION, ADMINISTRATION, CONTROLE, ASSOCIES OU MEMBRES

Président

Dénomination	VALECO
Forme juridique	Société par actions simplifiée
Adresse	188 Rue Maurice Béjart 34080 Montpellier
Immatriculation au RCS, numéro	421 377 946 Montpellier

RENSEIGNEMENTS RELATIFS A L'ACTIVITE ET A L'ETABLISSEMENT PRINCIPAL

Adresse de l'établissement	188 Rue Maurice Béjart 34080 Montpellier
Activité(s) exercée(s)	Production d'électricité d'origine renouvelable.
Date de commencement d'activité	16/03/2020
Origine du fonds ou de l'activité	Création
Mode d'exploitation	Exploitation directe

Le Greffier

FIN DE L'EXTRAIT

R.C.S. Montpellier - 25/11/2021 - 18:07:33 page 1/1

10.2. Annexe 2 : Intentions financières de EnBW vis-à-vis de la société PE des Lavières

EnBW Energie Baden-Württemberg AG · 76180 Karlsruhe · Allemagne

PE des Lavières – SAS
A l'attention de la Direction
188 Rue Maurice Béjart
CS 57392
34184 Montpellier Cedex 4
France

EnBW
Energie Baden-Württemberg AG

EnBW

Durlacher Allee 93
76131 Karlsruhe
Allemagne
Téléphone +49 721 63-06
Fax +49 721 63-12725
www.enbw.fr

15 novembre 2021

Financement du projet éolien des Lavières

Madame, Monsieur,

La Société PE des Lavières, société par actions simplifiée, immatriculée au RCS de Montpellier sous le numéro SIREN 883 462 558 au capital social de 500 EUR que vous représentez porte le projet éolien des Lavières.

Cette Société est détenue à 95% par le Groupe Valeco et à 5% par la commune de Condes en Haute-Marne. Elle a été créée aux fins du développement, de la réalisation et de l'exploitation de ce projet de parc éolien.

Le Groupe Valeco est un producteur d'énergie renouvelable depuis 1999 et développe, construit et exploite des installations de production d'électricité d'origine renouvelable. Depuis juin 2019, Valeco fait partie du Groupe EnBW Energie Baden-Württemberg AG.

EnBW est le troisième énergéticien allemand détenu à plus de 95% par des acteurs publics du Bade-Wurtemberg parmi lesquels le Land, des communautés de communes, des municipalités ou leurs régies. Le Groupe EnBW emploie environ 23.300 collaborateurs et a réalisé en 2020 un chiffre d'affaires de 19,7 milliards d'euros.

EnBW s'est fixé l'ambition de faire des énergies renouvelables un des principaux vecteurs de croissance dans le cadre de la transition énergétique en allouant à celles-ci près de 58% de l'investissement total du Groupe d'ici à 2021.

Le projet de parc que la société PE des Lavières porte, représente pour Energie Baden-Württemberg AG l'opportunité de concrétiser cette stratégie par le développement et la mise en service de nouvelles capacités de production renouvelables en France.

Siège social: Karlsruhe
Registre du commerce de Mannheim
N° HRB 107956
N° fiscal intracom. DE 812 334 050

Président du Conseil de Surveillance :
Lutz Feldmann
Directoire :
Dr. Frank Mastiaux (Président)
Dirk Güsewell
Thomas Kusterer
Colette Rückert-Hennen
Dr. Georg Stamatelopoulos

EnBW
Energie Baden-Württemberg AG

EnBW

Nous vous confirmons par la présente notre intention de financer la totalité de l'investissement relatif au projet des Lavières, soit un investissement à hauteur d'un montant de 17,640 millions d'euros.

EnBW réalisera l'investissement au moyen d'un financement de groupe donc sans un financement bancaire spécifique au projet. Notre Groupe dispose d'un excellent accès aux marchés financiers internationaux et entretient des relations d'affaires de longue date avec des établissements financiers de premier plan. Ceci permet à EnBW de disposer à tout moment du financement pour l'investissement à venir.

Grâce à une stratégie financière saine et prévoyante et à un modèle économique pérenne, EnBW a obtenu de la part des deux agences de notation internationalement reconnues les notations supérieures suivantes :

- Moody's Investors Services : Baa1 / Stable (18 Mai 2021)
- Standard & Poor's Ratings Services : A- / Stable (2 Juin 2021)

L'investissement sera soumis à l'approbation préalable des instances décisionnelles du Groupe, une fois les autorisations administratives obtenues.

Au vu de la qualité des projets développés et des échanges permanents entre les équipes Valeco et EnBW, nous avons toutes les raisons de penser que ce projet sera en phase avec les attentes techniques et financières du Groupe.

Nous vous prions, Monsieur, Madame, de bien vouloir accepter l'expression de nos sentiments distingués.

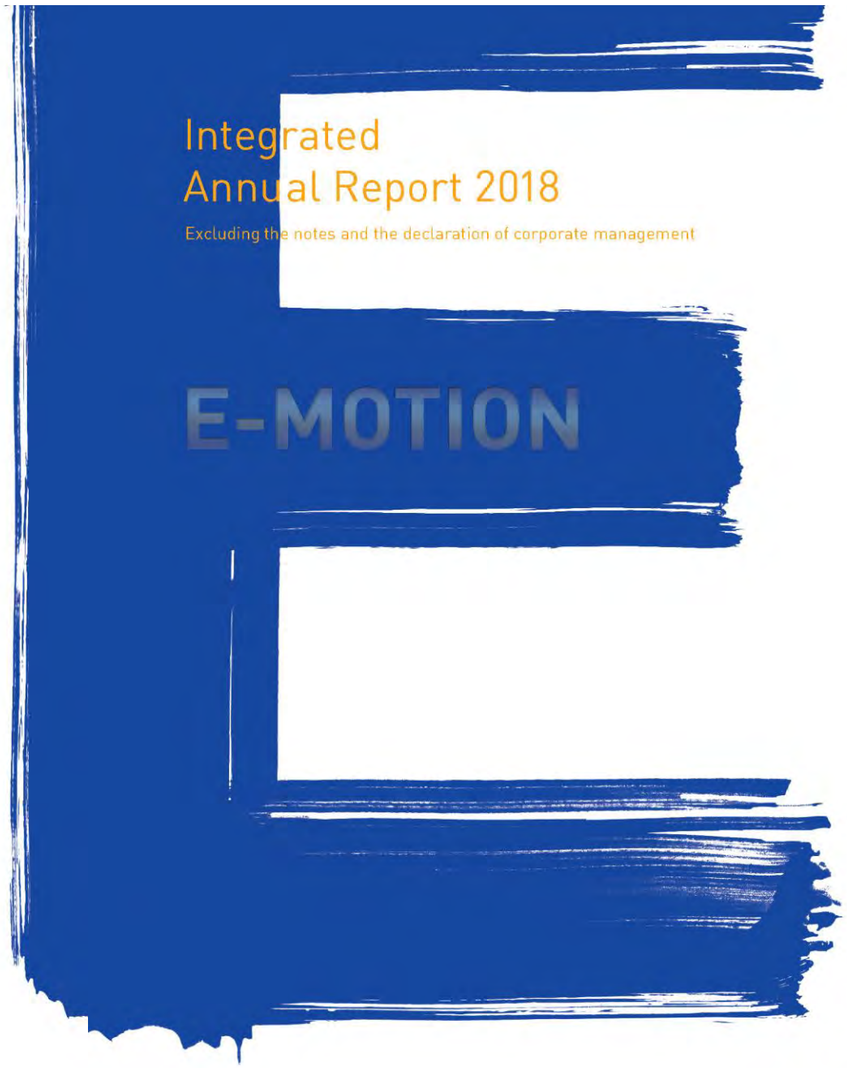
DocuSigned by:
8F03EB550AD646C...
i. V. Marcel Munch

Senior Vice President
EnBW Energie Baden-Württemberg AG

DocuSigned by:
BCB30B81F4EB441...
i. V. Markus Pfaffle

Director Bank-/Project Finance
EnBW Energie Baden-Württemberg AG

10.3. Annexe 3 : Rapport annuel 2018 de la société EnBW



EnBW Energie
Baden-Württemberg AG
Durlacher Allee 93
76131 Karlsruhe
www.enbw.com

EnBW

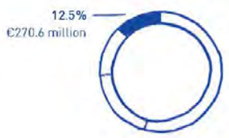
EnBW at a glance

Sales

5.5 million customers
B2C and B2B 2018

Full-service provider of decentralised energy solutions

Adjusted EBITDA in 2018



Grids

Adjusted EBITDA in 2018

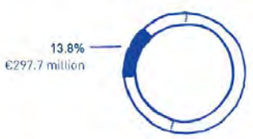
4x around the world
Length of our electricity grid: 151,000 km

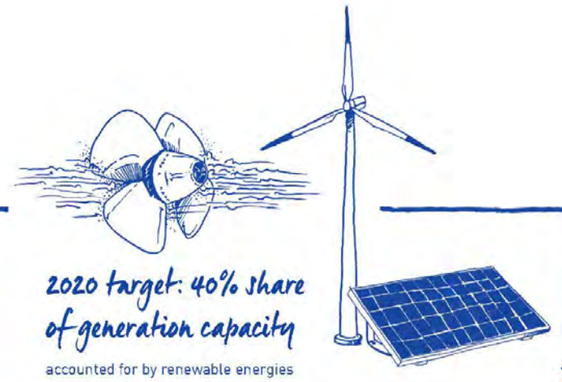
0.5x around the world
Length of our gas grid: 24,000 km

€967.4 million
Investment in 2018

Renewable Energies

Adjusted EBITDA in 2018





2020 target: 40% share of generation capacity
accounted for by renewable energies

€476.0 million
Investment in 2018

Generation and Trading

Almost 40% fewer
CO_2-intensive power plants since 2012

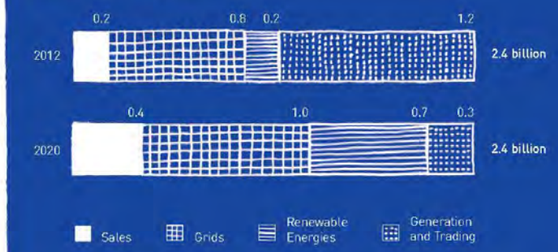
Phasing out of nuclear energy: 2022

Adjusted EBITDA in 2018

€2.2 billion
Adjusted EBITDA in 2018

Strategic repositioning of the company

Adjusted EBITDA 2012/2020



What sets us apart

- Active along the entire value added chain
- Stable shareholder structure
- All financial ratings in the A-grade range
- Leading position on important sustainability ratings for the energy sector
- Integrated reporting since 2014
- Cultural change
- Evolving from an energy supplier to an infrastructure partner

21,775
Employees 2018

Generation mix
Installed output in MW 2018

Renewable energies		Thermal power plants	
Pumped storage (natural flow of water)	1,507	Brown and hard coal	4,366
Wind	1,054	Nuclear power plants	2,933
Run-of-river	1,006	Gas	1,468
Other	171	Pumped storage	545
		Other	349

Performance indicators of the EnBW Group

Financial and strategic performance indicators

in € million	2018	2017	Change in %
External revenue	20,617.5	21,974.0	-6.2
TOP Adjusted EBITDA	2,157.5	2,113.0	2.1
TOP Share of adjusted EBITDA accounted for by Sales in € million/in %	270.6/12.5	330.0/15.6	-18.0/–
TOP Share of adjusted EBITDA accounted for by Grids in € million/in %	1,176.9/54.5	1,045.9/49.5	12.5/–
TOP Share of adjusted EBITDA accounted for by Renewable Energies in € million/in %	297.7/13.8	331.7/15.7	-10.3/–
TOP Share of adjusted EBITDA accounted for by Generation and Trading in € million/in %	428.6/19.9	377.1/17.8	13.7/–
Share of adjusted EBITDA accounted for by Other/Consolidation in € million/in %	-16.3/-0.7	28.3/1.4	–/–
EBITDA	2,089.6	3,752.4	-44.3
Adjusted EBIT	957.5	998.8	-4.1
EBIT	875.8	2,504.0	-65.0
Adjusted Group net profit[1]	438.3	793.3	-44.7
Group net profit[1]	334.2	2,054.1	-83.7
Earnings per share from Group net profit in €[1]	1.23	7.58	-83.7
Retained cash flow	999.1	3,050.3	-67.2
TOP Internal financing capability in %	93.2	111.9	-16.7
Total investments	1,769.9	1,770.3	0.0
Net financial debt	3,738.4	2,917.8	28.1
Coverage ratio ALM in %[2]	51.8	53.3	–
TOP Return on capital employed (ROCE) in %[2]	6.5	7.3	–
Weighted average cost of capital before tax in %	6.3	6.3	–
Average capital employed[3]	16,053.3	15,119.9	6.2
Value added[2]	32.1	151.2	-78.8

Non-financial performance indicators

	2018	2017	Change in %
Customers and society goal dimension			
TOP Reputation Index	51.3	52.1	-1.5
TOP EnBW/Yello Customer Satisfaction Index	120/152	143/161	-16.1/-5.6
TOP SAIDI (electricity) in min./year	17	19	-10.5
Employees goal dimension			
TOP Employee Commitment Index (ECI)[3]	62	60	3.3
TOP LTIF[4]	2.3	3.0	-23.3
Environment goal dimension			
TOP Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %[2]	3.7/27.9	3.4/25.8	8.8/8.1
TOP CO_2 intensity in g/kWh	553	556	-0.5

Employees of the EnBW Group[5]

	31/12/2018	31/12/2017	Change in %
Employees	21,775	21,352	2.0
Full-time equivalents[6]	20,379	19,939	2.2

1 In relation to the profit/loss attributable to the shareholders of EnBW AG.
2 The figures for the previous year have been restated.
3 Variations in the group of consolidated companies (consideration of companies controlled by the Group [without ITOs]).
4 Variations in the group of consolidated companies (consideration of all employees at those companies controlled by the Group, except external agency workers and contractors).
5 Number of employees excluding apprentices/trainees and inactive employees.
6 Converted into full-time equivalents.

Dear Sir or Madam,
Dear Shareholders, Employees,
Partners and Friends of EnBW,

The title of our Integrated Annual Report says it all: "E-motion" stands for electromobility, emotion and movement – and thus also for the transformation taking place at our company.

EnBW has been undergoing a profound process of change with a clear goal: we are evolving step by step from a conventional energy supplier into a partner for energy and infrastructure – a partner who relies on sustainability and innovative strength and one who works in an efficient, digital and customer-oriented manner.

We have made progress on this path together in the past year. We have further increased the share of our energy generation accounted for by renewable energies and also invested in new business fields that have a promising future. Fantastic opportunities are emerging as the process of digitalisation brings sectors such as transport and energy closer and closer together. Some examples of this are electromobility, the expansion of broadband infrastructure, and smart city and district development. This means that we are now rigorously transferring our core expertise – such as the safe and reliable operation of critical energy infrastructure – to neighbouring fields.

As a representative example of these still relatively new themes for EnBW, we are highlighting the opportunities and challenges in the area of electromobility in this report from a variety of different perspectives: Where does Germany stand with respect to this kind of technology compared with other countries? How do we at EnBW want to help e-mobility achieve the breakthrough? What expectations do customers have? And why are partnerships with other companies especially important in this area? You will find our answers to these and other questions on the following pages.

At the same time, this year's main theme will also convey part of our corporate culture. As you will see, we do what we do with passion and emotion. We want to help create something meaningful – after all every masterpiece starts with a single brush stroke. And we want to also leave our mark on the energy world of the future.

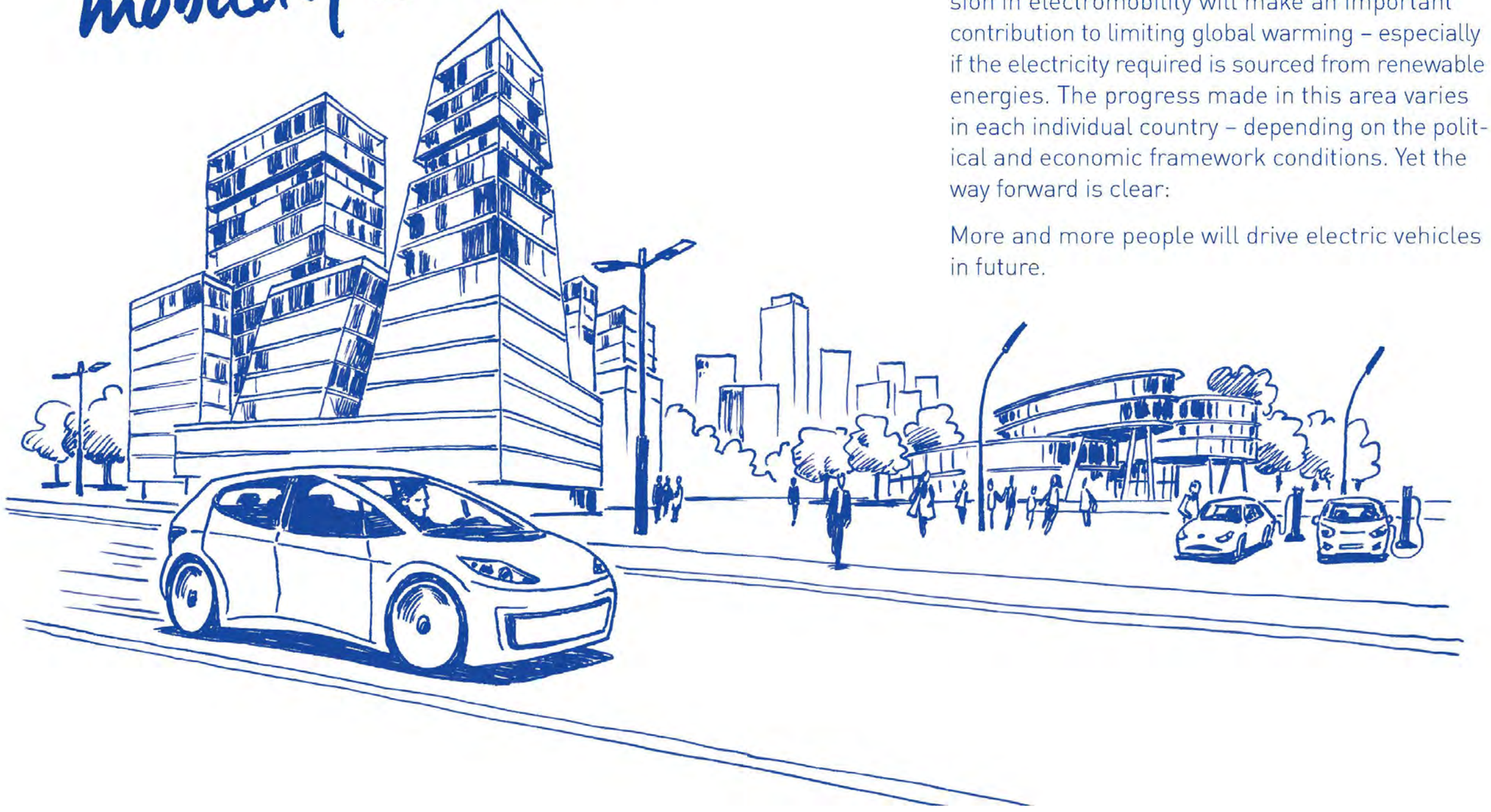
Yours sincerely,

Frank Mastiaux

Dr. Frank Mastiaux
Chairman of the Board of Management

Integrated Annual Report 2018 of EnBW

The future of mobility is electric



There is no question that a dynamic global expansion in electromobility will make an important contribution to limiting global warming – especially if the electricity required is sourced from renewable energies. The progress made in this area varies in each individual country – depending on the political and economic framework conditions. Yet the way forward is clear:

More and more people will drive electric vehicles in future.

The European Union has decided, for example, that CO_2 emissions from new car fleets must be reduced by 35 percent by 2030. This can only be achieved if manufacturers invest more heavily in the production of electrically powered vehicles.

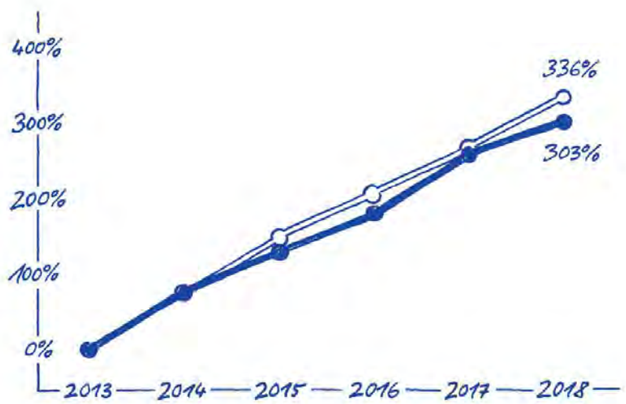
The task is clear but the challenge lies in the execution – which will by no means be a linear process." Things are developing very differently in each region and we cannot speak of a uniform global e-car market," says Nicolai Müller, Senior Partner at McKinsey, who together with his team regularly measures the progress made in e-mobility in the 15 most important countries for this sector.

"We cannot speak of a uniform global e-car market."
Nicolai Müller

The fact is that electromobility is growing, but starting off from a low level. The global stock of electric cars had grown to 5.6 million at the end of 2018. In comparison to the previous year, this represents an increase of around 74 percent. In absolute terms, China sets the gold standard. A total of 1.2 million electric cars were sold in the country in 2018 – twice as many as in the previous year – which means that more than every second e-car in the world was registered in the Middle Kingdom. The demand for e-vehicles also increased significantly in the USA in 2018; there were 356,000 newly registered vehicles, which represented an increase of 84 percent. More than every second new e-car in the USA was registered in California. The west coast state has once again confirmed its status as a pioneer for e-mobility. The number of e-cars has also grown in Europe – although at varying rates.

An upward trend for e-cars

Growth in the number of electric cars
(Increase in percent)

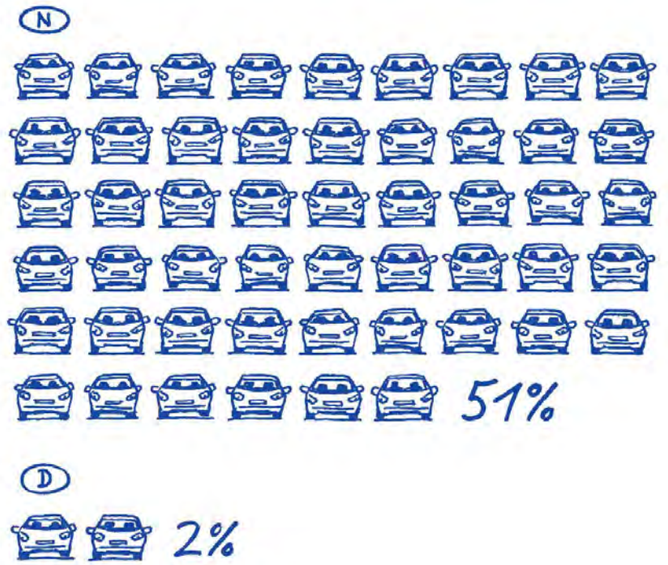


Starting from a low level, electromobility has grown rapidly in the past few years. Around 5.6 million e-cars were on the roads at the end of 2018. China accounts for almost half of this number (2.6 million). At the end of 2018, Germany had almost 142,000 e-cars.

Source: Centre for Solar Energy and Hydrogen Research Baden Württemberg (ZSW) 2018

Where are they being driven?

Share of newly registered vehicles accounted for by e-cars



More than half of all newly registered vehicles in Norway were electric cars in 2018. In comparison, electric vehicles only accounted for a modest 2 percent of the newly registered cars in Germany during the same period.

Source: Center of Automotive Management (CAM)

E-mobility has so far been a niche market in Germany. Yet the trend is clear: The number of e-cars is also increasing here at home.

0.5%

The share of the global vehicle stock accounted for by e-cars is still extremely small. This is set to change! (As of the end of 2018)

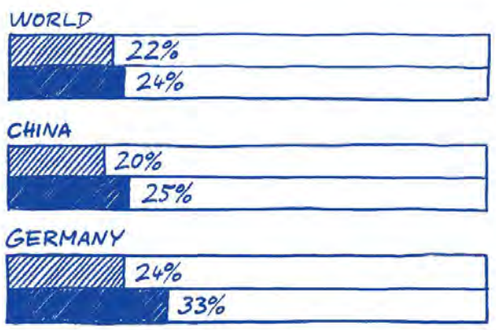
Although Germany has certainly made progress in the area of electromobility, it has been at a relatively moderate pace. Around 68,000 new e-cars were sold here in 2018. This represents growth of 26 percent compared to the previous year and makes Germany the second largest market in Europe after Norway. More than 86,000 e-cars were newly registered in the Scandinavian country in 2018 – which has a population of just 5 million people.

A quick glance at the share of the total market accounted for by e-vehicles shows how much road traffic is still dominated by cars with combustion engines. Or in other words, this highlights the huge potential offered by electromobility. The share of the global vehicle stock accounted for by electric vehicles still stood at just 0.5 percent at the end of 2018. The undisputed leader in terms of market share is Norway, where electric cars account for around 10 percent of the total number of vehicles.

The figures and the underlying framework conditions differ in each region. "Many factors vary from country to country, in some cases even from city to city: the size of the purchase subsidy, the charging infrastructure and the legal regulations all differ," explains Nicolai Müller, the expert from McKinsey.

Electricity is becoming "greener"

Share of gross electricity generation accounted for by renewable energies



2012
2017

The electrical energy generated worldwide is being produced increasingly from environmentally friendly sources. In Germany, the share accounted for by renewable energies lies above the global average. China is also making progress in this area, even though the majority of their energy is still generated using coal.

Source: Global Energy Statistical Yearbook (yearbook.enerdata.net), REN21 / Renewable Energy Policy Network for the 21st Century (ren21.net)

New technologies must have the right framework conditions: Targeted government funding is decisive for promoting e-mobility.

China is a good example: "China is setting the pace for e-mobility globally and is embracing this role with increasing intensity," says Prof. Dr. Stefan Bratzel, Director of the Center of Automotive Management (CAM). "Decisive factors in this strategy are industrial policies such as independence from oil imports and the targeted development of globally active car manufacturers with electrical expertise."

There is no other country in the world where e-mobility is promoted as strongly as in China, where around 40 percent of the purchase price for an e-car is subsidised. These vehicles can be registered easily, while a draw is held for permission to register standard cars with combustion engines. No wonder that the number of e-vehicles on China's streets is set to continue to rise dramatically – from the current figure of 2.6 million (end of 2018) to more than 5 million in 2020. In addition, there are plans to manufacture 5 million e-cars per year up to 2025. This would be equivalent to the current production capacities of all the German car factories combined. At the same time, considerable investment is being made into the associated infrastructure in China. There are plans to install a total of 4.8 million new charging points for e-cars in the country by 2020. China means business with electromobility and already realises that the new drive technology only makes ecological sense if the required electricity comes from renewable sources. The country is still very dependent on coal-fired generation but invested almost 133 billion US dollars in the expansion of renewable energies in 2017 – more than every other country worldwide.

E-mobility only makes sense if the required electricity comes from renewable sources.

These dynamic developments cannot (yet) be seen in the USA, despite the special role played by California. Range is a decisive factor in the Great Plains and other flat land areas, while fossil fuels are so cheap that cars with combustion engines are clear favourites amongst purchasers. However, the proportion of e-cars is also set to grow in the USA due to the predicated fall in production costs. In addition, the US market will benefit from high investment by US automakers in new drive technologies – and from the stricter emissions standards in some federal states.

Electromobility means California in the USA. This federal state on the West Coast is also a pioneer in the expansion of renewable energies.

-40%

California wants to significantly reduce its greenhouse gas emissions by 2030

+15%

The share of total electricity generation accounted for by renewable energies is also growing in the USA.

It comes as no surprise that California also plays a special role in this area. The west coast state aims to reduce its greenhouse gas emissions by 40 percent by 2030 and that's why it plans to rigorously expand electromobility. Subsidies are available for electrically powered vehicles across the USA as a whole. For a plug-in hybrid or a car with a battery capacity of at least 5 kilowatt hours, purchasers receive a tax credit of 2,500 US dollars. The tax credit can increase up to a maximum of 7,500 US dollars for larger battery capacities.

The charging infrastructure is very unevenly distributed regionally in the USA. The highest concentration can be found on the West Coast. The "West Coast Electric Highway" – an initiative to promote electromobility – has charging stations every 40 to 80 kilometres. Around 16,000 public and 3,000 private charging stations exist across the country. Yet this is nothing in comparison to standard filling stations: owners of vehicles with combustion engines can use around 112,000 filling stations each offering up to 30 fuel pumps. It is the car industry in particular that wants to invest billions of US dollars in the next few years to close this gap in infrastructure.

The expansion of electromobility in the USA will also go hand in hand with an increase in electricity generation from renewable energies. The share of total energy generation accounted for by renewable energies increased by 15 percent in 2017, with electricity generation from solar energy even increasing by 25 percent – thanks to California.

Tax breaks and other discounts work: Norway is an example of how the state can help electromobility achieve a breakthrough.

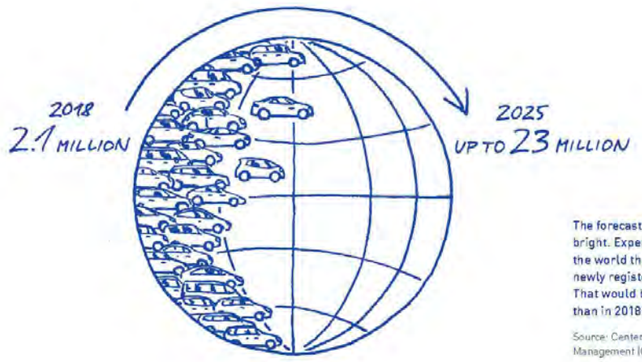
The market for electrically powered vehicles is booming in Scandinavia, especially in Norway. The main reason for this is the high state subsidies that are offered to purchasers. They neither have to pay emission taxes, which can amount to as much as 10,000 euros for a combustion engine vehicle, nor VAT. The vehicle tax for e-cars is also significantly lower than for cars with a combustion engine. In addition, users of e-cars in Norway also benefit from a series of other discounts. For example, they can take their cars on the state-run ferries free of charge and do not have to pay to use toll roads.

Furthermore, the state is also taking care of the expansion of the infrastructure. The aim is to almost double the number of charging connections in Norway from around 13,000 now to 25,000 by 2020 – and thus provide complete coverage across the country.

Hydropower dominates electricity generation in Norway. In the first Global Energy Transition Index, published by the World Economic Forum (WEF) in March 2018, four of the first five places were held by countries from northern Europe. Norway was ranked 2nd behind Sweden. In comparison, Germany was ranked in 16th place.

E-cars are conquering the world

Number of e-cars newly registered worldwide each year



The forecast for electromobility is bright. Experts predict that across the world there will be 23 million newly registered e-cars in 2025. That would be twelve times more than in 2018.

Source: Center of Automotive Management (CAM), January 2019

Ambitious targets: Germany aims to have 1 million e-vehicles on its roads by 2022 – which is ten times more than in autumn 2018.

30%

Almost a third of all cars newly registered in Germany in 2025 should be e-cars.

Germany has also made progress over the last few years with the expansion of renewable energies and generation of green energy increased by around 6 percent in 2018 in comparison to the previous year. Overall, the share of total gross electricity generation accounted for by renewable energies here at home stood at around 35 percent. Coal accounted for a similarly high share.

The increasing debate about emission limits and bans on certain vehicles have, in particular, resulted in a noticeable upturn in the market for electromobility. And yet the country is still lagging behind its own targets. As a result, the German government had to move the deadline for achieving its target of having around 1 million e-cars on the streets of Germany from 2020 to 2022 (see also the adjacent interview). Around 142,000 battery powered cars were on our roads by the end of 2018.

The German car industry has now announced that it will invest a huge amount in the expansion of electromobility and will launch numerous new e-car models on the market. In the meantime, the government has also started focusing more strongly on state subsidies so that purchasers of e-cars will now receive an environmental subsidy of at least 4,000 euros.

It will require considerable effort to install the necessary infrastructure for the 1 million e-cars now planned for the new deadline of 2022. Experts at the German National Platform for Electric Mobility (NPE) estimate that around 77,000 public charging points need to be installed by then – there were only around 16,000 by the end of 2018. EnBW recognised this a long time ago – it is not only a pioneer amongst energy suppliers for the expansion of renewable energies, but also leads the way in the construction and operation of public charging points.

Prof. Dr. Henning Kagermann
Chairman of the German National Platform for Electric Mobility (NPE) and President of the German National Academy of Science and Engineering (Acatech). Prof. Dr. Henning Kagermann was the spokesperson for the Management Board of SAP AG from 2003 to 2009.

"Germany is a leading international supplier of electromobility."

Interview with Prof. Dr. Henning Kagermann

Professor Kagermann, what contribution can electromobility make to limiting global warming?
Kagermann: Electromobility offers clear advantages for the climate, environment and life in urban areas – especially lower CO_2 emissions, zero local emissions of nitrogen oxides and particulate matter, and less noise pollution. Electric vehicles are cleaner and quieter.

Where does Germany stand with respect to electromobility compared with other countries?
Kagermann: Much has been achieved in the last few years. Germany is a leading international supplier for electromobility. Our car manufacturers have achieved a comparable market share for their electric cars as for their conventional cars in all markets, with the exception of China which is a special case. Every third patent for electromobility worldwide is held by Germany.

Yet it was nevertheless necessary to push back the deadline for achieving 1 million e-cars on the streets of Germany. What has to happen so that Germany can achieve its e-mobility targets?
Kagermann: An appropriate charging infrastructure to meet the demand, suitable framework conditions, incentives and attractive vehicles must all go hand in hand to enable e-mobility to quickly break though on a large scale. The funding packages for the expansion of the charging infrastructure are already beginning to bear fruit. Just within the scope of the funding programmes offered by the German government, it was possible to triple the number of normal charging points and achieve almost a tenfold increase in quick-charging points by the end of 2018.

What challenges still need to be overcome?
Kagermann: We need to ensure that we don't let up in our efforts so that we can maintain the highly dynamic growth of the market. Local authorities should ensure all users of e-cars are able to take advantage of the benefits offered by the Electric Mobility Act. In addition, the environmental bonus should be retained until the target of 1 million electric cars on German streets is achieved. This should be accompanied by further funding measures to expand the charging infrastructure and by reforms to tenancy law and property rights, so that the number of public and private charging points can grow in line with the number of e-cars.

What do you expect from the energy supply companies in the further expansion of e-mobility?
Kagermann: As the number of electric cars increases, they will become an important control variable for the energy sector. The demand for charging infrastructure that is fit for the future will then grow steadily. This will place new demands on the power distribution grids which can be countered by the local expansion of the energy grid and the use of smart load management. It is already necessary today to build a comprehensive, intelligently networked and controllable charging infrastructure across the country to ensure that integration into the grid remains sustainable and cost-efficient.

Electromobility by conviction

EnBW positioned itself at a very early stage so that it could actively shape the Energiewende and shift its focus, in particular, onto the opportunities that it offers. The company views itself more and more as an infrastructure supplier and is pushing forward themes relevant to the whole of society such as smart city and district development and, naturally, electromobility.

The company has had to clearly position itself in order to be ready to face the important themes of the future. "Our engagement in electromobility comes from the deepest conviction," says Dr. Frank Mastiaux, Chief Executive Officer of EnBW. "This sector is just as important to us as the expansion of renewable energies."

"Our engagement in electromobility comes from the deepest conviction."
Dr. Frank Mastiaux

EnBW and its subsidiary Netze BW cover the most important parts of the value added chain for e-mobility: Netze BW provides the electricity grids and storage solutions, while EnBW generates electricity from renewable energy sources and is further expanding the charging infrastructure – while offering corresponding products and services to the commercial sector, local authorities and private consumers. "For example, we offer our business customers full e-mobility packages for the operation of their vehicle fleets or we can connect the photovoltaic power plant on the roof of a private customer's house with an electricity storage system and their electric car," explains Timo Sillober, Head of Sales at EnBW. This means that the customer uses their own electricity generated from solar energy to operate their car.

EnBW combines its services in the area of electromobility in the EnBW mobility+ product family. "We have brought together everything you need to be electrically mobile," explains Sillober, describing the concept behind the product family. This includes so-called wallboxes (compact charging stations for installation at home, for example in the garage), charging infrastructure while out and about and digital services such as the EnBW mobility+ app that enables users to charge at stations not operated by EnBW (see extra box on p.13).

"We offer everything that you need to be electrically mobile."
Timo Sillober

The decisive factor for achieving more widespread use of electromobility is the development and expansion of corresponding infrastructure. The task for Netze BW is to bring the charging electricity to where it is needed: on the motorway, in the city, in the countryside and at home. EnBW is in turn tasked with operating the required charging stations at these locations. This results in a clear mandate for the company that Head of Sales, Timo Sillober, expresses as follows: "We want to make our contribution to ensuring that people can set off in their electric cars without having to worry about the distance they can travel or the charging opportunities available to them. In addition, we will combine individual solutions to create new applications so that our customers will be able, for example, to use their own solar electricity generated at home to charge their e-car when they are on the road."

EnBW already assumed a pioneering role in the area of charging infrastructure many years ago. The company began installing charging stations for electric vehicles in Stuttgart in 2012 and has since supplied electricity to the largest fleet of electric vehicles in a major city. No wonder then that Stuttgart is considered the city with the best conditions for electromobility across Germany according to a study carried out by the consulting firm PricewaterhouseCoopers.

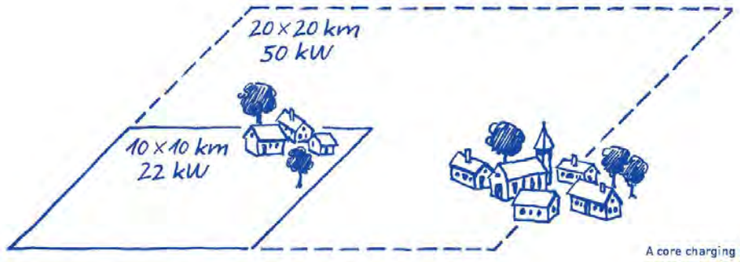
The Services Division at the subsidiary Netze BW is responsible for installing the individual charging stations for EnBW. Netze BW has a high level of expertise in the planning, installation and operation of critical infrastructure and has become an expert in charging infrastructure. "We have aligned our services to the new requirements of modern mobility and drivers of electric cars can rely on the fact that they will be able to charge their vehicles from Munich to Hamburg," explains Axel Hausen, Head of Product Management at Netze BW, Services Division.

Product development, sales and managing the development of the charging infrastructure – as well as its operation and maintenance – is, on the other hand, the responsibility of EnBW. "Our main focus is currently the expansion and operation of quick-charging stations," says Marc Burgstahler, Head of Electromobility at EnBW, describing the current activities of the company in this area. In comparison to conventional AC charging stations (alternating current), DC charging stations (direct current) allow a significantly quicker charging process. This means that customers can, for example, charge their vehicle with enough electricity to cover a distance of around 100 kilometres in just 3 minutes at DC charging stations with a charging capacity of 300 kilowatts (so-called "high power chargers"). EnBW is one of the market leaders for the operation of quick-charging stations in Germany with currently more than 130 quick-charging stations, primarily at motorway service stations and in urban areas. And it has ambitious targets: "We aim to operate 1,000 quick-charging stations across Germany by the end of 2020," explains Burgstahler. EnBW is cooperating with partners such as OMV, Tank & Rast and hagebau.

"Our main focus is currently the expansion and operation of quick-charging stations."
Marc Burgstahler

Seamless coverage

Distance between charging stations in Baden-Württemberg



A core charging network: The next charging station is never far away in Baden-Württemberg, no matter whether a charging capacity of at least 22 kilowatts or at least 50 kilowatts is required.

SAFE – the electrical charging network for Baden-Württemberg – provides comprehensive infrastructure. The next charge is never more than 10 kilometres away.

The State of Baden-Württemberg – often dubbed the automobile state – believes that it has a special obligation to help electromobility make the breakthrough and thus pave the way for environmentally friendly mobility. As part of the funding programme to establish a core charging network for electric vehicles covering the whole of Baden-Württemberg (SAFE), a consortium consisting of 74 municipal utilities and regional suppliers as well as three local authorities under the leadership of EnBW has developed a closely meshed network of charging stations in the past few months.

Drivers of e-vehicles in Baden-Württemberg will already have access this year to a charging station with a charging capacity of at least 22 kilowatts in a grid with a mesh size of 10 by 10 kilometres from any location. In a grid with a mesh size of 20 by 20 kilometres, there will also be at least one quick-charging station with 50 kilowatts of charging capacity.

Netze BW is investing around 500 million euros in the expansion of its electricity distribution grid up to 2025 so that it can cope with the increased demand.

Stable electricity grids are a basic requirement for the reliable charging of e-cars. It is not the volume of electricity that is the issue but the peak loads that occur when lots of vehicles are being charged at the same time. This is because the grid can only remain stable when the same volume of electricity is being fed into it as is being extracted. Therefore, it is vital for electricity grid operators such as Netze BW to take suitable measures to adapt the supply to the requirements of electromobility early enough, so that they are ready to anticipate peaks in demand. Against this background, Netze BW is investing around 500 million euros in the expansion of its electricity distribution grid up to 2025 so that it can cope with the increased demand. Ultimately, a stable electricity grid is worth every cent.

The networker

EnBW has not only taken on a leadership role as part of the SAFE funding programme, the company and its subsidiary Netze BW are also actively involved in a series of other initiatives for the further development of e-mobility.

As early as the summer of 2017, Netze BW was the first energy company to join the German Association of the Automotive Industry (VDA). Since the turn of the year 2018/2019, Netze BW has also been a member of the Research Association of Automotive Technology (FAT) in the VDA and contributes to the discussion from its perspective as a grid operator.

In addition, EnBW is also involved in the Strategy Dialogue for the Automotive Sector in Baden-Württemberg, which was founded by the state government in 2017 and has representatives from the worlds of politics, business, science and civil society. The Managing Director of Netze BW GmbH, Dr. Martin Konermann, is Co-Chairman of the "Energy" steering group, while Timo Sillober is a member of the Advisory Board of e-mobil BW. The State Agency for New Mobility Solutions and Automotive Baden-Württemberg is responsible for the various themes covered by the strategy dialogue.

Simple. Everywhere. Reliable.

Whether electromobility is fit for everyday life is best demonstrated by how easily and intuitively it can be accessed by users. "Our EnBW mobility+ app has established itself as a kind of smart guide in this respect," says Christoph Ulusoy, Head of Product Development and Digital Solutions at EnBW. "The free app offers drivers of electric vehicles everything they need: an almost seamless overview of the available charging stations, full transparency with respect to tariffs and convenient payment functions. All of this makes the award-winning application the most downloaded app in the area of electromobility in Germany."

The app...

- ...is linked to around 25,000 charging stations from various operators in Germany, Austria and Switzerland – currently the largest charging network (as of January 2019) – and provides an overview in map form.
- ...indicates whether a charging station is free or occupied and guides the driver directly to the nearest place they can charge.
- ...enables EnBW customers to charge their vehicles at more than 90 percent of all publicly accessible charging stations – the highest network coverage in Germany, Austria and Switzerland – and pay directly.
- ...is also suitable for drivers of electric cars that are not customers of EnBW for locating free charging stations, showing them the way and checking the payment options.
- ...offers simple, understandable tariffs. Instead of the standard time-based pricing models, EnBW wants to offer precise consumption-based billing that is independent of the model of electric car. Since 1 March 2019, the company has been billing solely on the basis of the electricity that has actually been used during charging – to the precise kilowatt hour. This means that it bills at one uniform tariff across all stations in the roaming network.
- ...has an integrated driving simulator that can also be used by drivers of cars with a combustion engine to find out what e-car would best suit their own driving habits.

The EnBW mobility+ app is further confirmation of the pioneering role that the company is playing in the expansion of electromobility.

The E-Mobility Avenue

Is electromobility ready to be part of everyday life? In a pilot project being conducted by the EnBW subsidiary Netze BW, ten households in a residential street near Stuttgart are participating in a trial. They demonstrate that charging and driving are no problem, while the electricity grid also remains stable. We visited the residents.

Ostfildern is 20 minutes from the major city of Stuttgart. At first glance, Belchenstraße in the Ruit district looks just like many other residential streets in Germany. The single-family homes and plots are neither particularly large nor particularly small, there isn't anything flashy about the architecture and the cars are neatly parked. Yet a closer look reveals something surprising: five of the eight cars parked along the 100 metre long road are electric vehicles and two charging stations have been installed in the cul-de-sac. In fact, the inconspicuous looking Belchenstraße has been transformed into "E-Mobility Avenue" in the last few months.

Since June 2018, Netze BW has been testing the impact of electromobility on the electricity grid in a pilot project being conducted in cooperation with the City of Ostfildern. They are investigating what would happen if lots of residents on the same street, who are supplied with energy via the same electricity circuit, decide to switch over to electric cars at the same time, and how the use of battery storage systems may increase the stability of the grid.

To gain some insight into how charging patterns can be managed in a way that is customer-friendly but also has no negative impact on the grid, Netze BW has equipped ten households in Belchenstraße with e-cars and the corresponding infrastructure for charging them at home for a period of 12 months. The cost of the field test has proved worthwhile. Ultimately, the goal is to make the electricity grids fit for the age of electromobility. The location for the trial project has been well chosen. The households participating in the trial are representative of a typical residential area with owner-occupied homes, as is often found on the outskirts of cities. An area where in all probability most electric cars will be found in future. The mix of residents is also ideal: Belchenstraße is home to families with children, young couples and retired people – people with different lifestyles and different user patterns.

"I was curious to see what it would be like to test an electric car on a daily basis over a long period of time."

Norbert Frank

One of the residents and participants in the project is Norbert Frank, who is self-employed and a family man. "I was curious to see what it would be like to test an electric car on a daily basis over a long period of time," explains Frank, describing his reason for participating in the project. "Although we already have two cars, we thought it would be a useful addition, especially for journeys of up to 40 or 50 kilometres. These are the distances covered every day by my wife in particular. She is the one that uses the E-Golf provided by Netze BW the most." What has the experience been like so far? "Extremely positive," says Frank. "Everything works fine – both driving and charging – and we haven't noticed any bottlenecks in the electricity grid."

However, the e-mobility tester has noticed that the cars consume significantly more electricity in the cold winter months. "We are only able to cover about half the distance in winter as in the summer with the same amount of charge. "When we unplug the car from the socket in the morning, it displays a range of 246 kilometres. If my wife drives to Reutlingen and back, which is around 75 kilometres, the display then only shows 92 kilometres remaining. It still showed 150 or 160 kilometres in the summer. That means we have to charge the vehicle every day in winter." The main cause of the higher energy consumption is the heating in the car, which uses a lot of energy at lower temperatures.

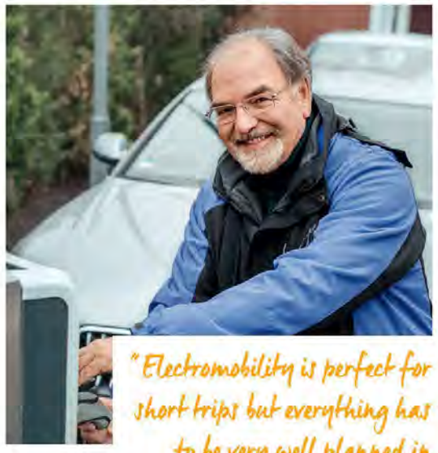
Yet even charging the car daily isn't a complicated process for the Frank family. A compact rectangular charging station that takes up very little room has been fitted to the wall in the garage, a so-called wallbox. This is where the e-car is recharged with electricity, generally in the evening or overnight, as Frank explains. "We usually charge the car in the evening between 7 o'clock and 10 o'clock or at night between 10 o'clock in the evening and 6 o'clock in the morning."

It takes around 3 to 5 hours until the batteries in the E-Golf are fully charged again. "Sometimes it takes a little longer, depending on the load placed on the electricity grid," says Christian Bott, who is responsible at Netze BW for the pilot project in Belchenstraße. "The challenge is to minimise peak loads while fully exploiting the capabilities of the electricity grid." Something that is necessary when several residents in Belchenstraße charge their e-cars at the same time. The charging capacity can then be reduced temporarily from 22 kilowatts to 11 kilowatts and the charging time increases accordingly. This "smart charging management system" takes into account the charging status and predicted departure time for each e-car. "The process is automatically managed overnight so that users do not notice whether their car was charging from the grid for 3, 5 or 8 hours."

The convenience of charging at home is an important reason as to why Norbert Frank is likely to continue using an e-car after the end of the trial project. "I can certainly highly recommend using an e-vehicle, especially for short journeys," confirms Frank. But the situation is a little different for longer journeys. "I often have to drive to Frankfurt or Cologne for business and that would still be a little problematic with an e-car. The infrastructure and charging capacities would still need to improve." Norbert Simianer, a neighbour from across the road, has a similar opinion on the matter. "Electromobility is perfect for short trips but everything has to be very well planned in advance for longer journeys," explains the pensioner, who was the resident in Belchenstraße who submitted the application to participate in the pilot project for Netze BW.

"I have been driving a hybrid car for some time and really wanted to know what it would be like to drive a purely electric car." The test vehicle being used by Simianer is a Renault Zoe. His verdict: "The Zoe is very suitable for everyday life. I use it just like I use my own car."

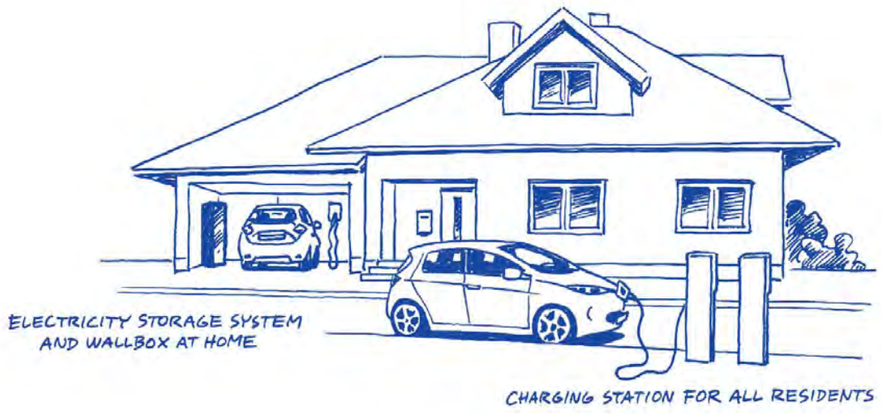
And that's why the former school principal has also used his electric car for longer journeys. "We have already taken trips to Lake Constance and Switzerland. It was necessary to search for suitable charging stations there in advance because every provider has their own system, but even this issue can be overcome." He certainly didn't find himself stranded without power. To provide Norbert Simianer with a home charging solution he can rely on at all times, Netze BW have also fitted a battery storage system next to the wallbox in his garage. "There were some special factors that needed to be considered in this case," explains Netze BW expert Bott. "From an electricity grid perspective, Mr Simianer lives right at the end of the electricity line on Belchenstraße. He also drives an e-car with a high charging capacity of 22 kilowatts. To take these circumstances into account, we charge the Zoe from a separate battery storage system to reduce the load on the grid." And this storage system is in turn charged at times of the day when other electric cars are not connected to the electricity grid. This delicate balancing act is carried out silently in the background, unnoticed by the customer.



"Electromobility is perfect for short trips but everything has to be very well planned in advance for longer journeys."

Norbert Simianer

No wonder then that the e-pioneers Frank and Simianer don't focus too much on the electricity supplier and grid operator when they describe the challenges that need to be overcome in order for electromobility to finally make a breakthrough. "The car industry also needs to play its part," says businessman Frank. "The choice of e-cars that have a good range is still very limited." As a frequent driver, he would also like to see more charging stations and above all shorter charging times when on longer journeys. "When it takes more than 1 hour to charge my car with electricity at a service station, I end up drinking a lot of coffee." "In particular, we need uniform standards for the entire charging infrastructure", adds Simianer. "Nobody takes 20 different adapters with them when they go on a trip." And the e-pioneer wants to say something else before he jumps in his Zoe to make his next (short) trip: "The electricity used to charge the electric car should preferably be green electricity. But then EnBW does already offer the right mix."



Monika Bader,
Senior Planning Officer for Ostfildern

"Enthusiasm for electromobility is growing."

Interview with Monika Bader

Mrs Bader, you are the Senior Planning Officer for the City of Ostfildern. What significance does electromobility have for your community?
Monika Bader: Electromobility is an important element of the new mobility concept that we are currently developing. The challenge is to intelligently network all types of mobility – in terms of both private and public transport.

What insights have you gained from the "E-Mobility Avenue" pilot project in Belchenstraße?
Bader: Firstly, the project is helping to improve acceptance and enthusiasm for electromobility amongst the general public. People can see that the technology really works. They can also gain a better understanding of all the things you need, such as charging stations and additional electricity storage systems – and the fact that you might need to plan your journeys a little better than before.

As acceptance for electromobility increases, so will the demand for the corresponding public infrastructure ...
Bader: Yes, and this is a real challenge because of the limited space. There is actually no space left available in public areas. The options are extremely limited, especially in existing urban districts.

However, new urban districts are a different matter altogether. How do you plan a typical district of the future?
Bader: Specific mobility concepts are already taken into account when developing the first concepts for an urban development project, even as early as the competitive tendering process. We are already thinking about future requirements – such as central intermodal hubs and parking guidance systems – and take into account the space needed for charging stations, as well as for external electricity storage systems and substations. The project in Belchenstraße has already clearly demonstrated that electromobility requires a highly efficient electricity grid.

And it is not only electromobility that requires lots of energy but also the ongoing process of digitalisation in general ...
Bader: That's correct. Digitalisation means that we will have to supply many more computers with electricity. When planning urban developments that are fit for the future, we also have to consider that people's homes and places of work will move much closer together. We will need to provide the right infrastructure and this means that when we talk about the expansion of broadband, we are also talking about the expansion of the electricity grid.

What makes an ideal energy supply company and an ideal grid operator in your opinion?
Bader: The ideal companies should provide a highly efficient electricity grid that is supplied with a very high proportion of renewable energies. A grid that will be able to cope reliably with the high demands of electromobility and digitalisation at all times. EnBW and Netze BW are making really good progress in this respect, boosted by the research projects they are running in our community.

"We complement each other perfectly."

Major projects require joint effort. That is why EnBW is relying on close collaborations – such as with Tank & Rast – for the establishment and expansion of charging infrastructure for electromobility.

Jörg Hofmeister, Head of Electromobility at Germany's largest mobility and service provider on the motorways, and Amadeus Regerbis, Head of Charging Infrastructure for Electromobility at EnBW, tell us about the aims of the partnership – and about the secret to success for good cooperation.

Mr Hofmeister, Mr Regerbis, what significance does electromobility have for your companies?
Amadeus Regerbis: Electromobility is an important component of the Energiewende for EnBW and it can be found as a recurring theme throughout our company. Purely electrically powered vehicles have no local emissions and are certainly the most efficient alternative drive technology for private transport.
Jörg Hofmeister: It is extremely important to us that we make our service stations fit for the future and in doing so adapt to the latest developments in mobility. Electromobility – which is growing in significance all the time – is an important theme for us. In close cooperation with the Federal Ministry for Transport and strong partners such as EnBW, we already began to establish the necessary infrastructure some time ago. Our common aim is to make a significant contribution to the breakthrough of electromobility.

How long have EnBW and Tank & Rast been working together and how did this cooperation come about?
Regerbis: It developed from the "SLAM" (fast-charging network for axes and metropolises) project run by the Federal Ministry for Economic Affairs and Energy. All the well-known German car manufacturers plus EnBW – as the sole major energy supply company – were involved in the project. However, we didn't just want to be a project partner but also an investor, and so we got in contact with Tank & Rast to develop the infrastructure where it made sense the most for long journeys, namely the motorways. We then quickly agreed the first 34 sites in Baden-Württemberg with Tank & Rast.
Hofmeister: This fitted in nicely with our plans because we had already decided to develop a network of charging stations offering the best possible coverage at the end of 2014. EnBW was, and remains, the ideal partner for this task because the company has extensive experience and expertise in the development, operation and maintenance of charging infrastructure.
Regerbis: ... and Tank & Rast has now become our partner of choice for achieving nationwide coverage. Electromobility requires a functioning network of charging stations that can be seen and experienced as part of everyday life. It is only in this way that acceptance for this new technology will grow amongst the general public. And the best place to achieve this for long journeys is on the motorways.
Hofmeister: We are united by the common goal of making long-distance e-mobility a reality. And both companies are following this goal with great enthusiasm.

"We are united by the common goal of making long-distance e-mobility a reality. And both companies are following this goal with great enthusiasm."
Jörg Hofmeister

What form does the cooperation take in practice? Who does what?
Hofmeister: There is a clear division of responsibilities. We jointly plan the network of charging stations and select the sites. Tank & Rast then makes the necessary space available at the selected sites and EnBW handles the actual installation and operation of the charging stations.
Regerbis: Our colleagues at Tank & Rast know their sites like the back of their hands and understand precisely which locations are best suited for the installation of charging stations. In addition, the company has lots of experience across the entire process – from submitting applications and dealing with the responsible authorities through to ensuring that the requirements with respect to traffic routes, underground construction and logistics are taken into account. This broad range of expertise impressed us from the very beginning and we benefit from it enormously.

So the cooperation up to now has been a positive experience?
Regerbis: Absolutely. We have achieved a lot together and further expanded our partnership. The first 34 charging locations in Baden-Württemberg have now grown into 125 across the whole of Germany. The cooperation between us simply works, we can rely on each other and complement each other perfectly.

There are a lot of legal requirements to be observed in this area. How long does it take to install a new charging station?
Hofmeister: The process now runs like clockwork. As a rule of thumb, we require about 6 months from the planning stage until installation. Considering the level of complexity involved in construction projects in Germany, it must be said that the authorities are very open to the expansion of electromobility.

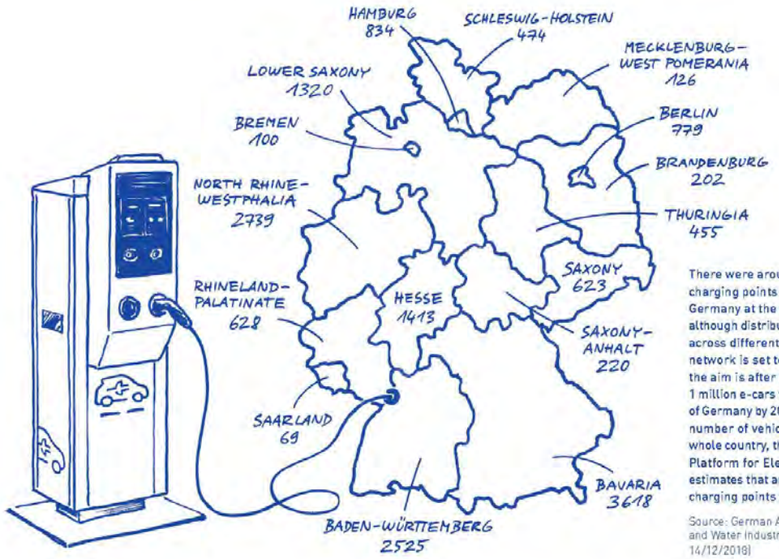
Is there an ideal location for charging stations at a motorway service station?
Hofmeister: The best location is close to the standard refuelling stations. And the ultimate aim for the recharging process is of course to mimic the refuelling process as closely as possible. That means shortening the charging times even further so that drivers can simply pull up to recharge their cars rather than park up.

What is the current status with respect to the construction of the infrastructure and what are the next steps that you want to take as part of this partnership?
Hofmeister: We have now been able to install more than 300 charging stations at our motorway service stations, a large proportion of which are provided by EnBW. This means that we have established a good, basic infrastructure for long journeys so that drivers can comfortably cover long distances on the motorways in their e-cars. In addition, the infrastructure is also already equipped to handle the increasing number of e-cars in the future. The next step is, in particular, to upgrade the existing charging stations. This will enable us to condense our network even further.

What does that mean specifically?
Regerbis: The aim is to increase the capacity of the charging stations. Our goal is to ensure that at least one quick-charging point with a capacity of 150 kilowatts is available at every EnBW charging station that we have installed at the Tank & Rast motorway service stations by the end of 2019.

The south is one step ahead

Number of public charging stations for e-cars by federal state
(As of the end of 2018)



There were around 16,000 public charging points for e-cars in Germany at the end of 2018 – although distributed very unevenly across different regions. Yet the network is set to become denser, the aim is after all for around 1 million e-cars to be on the streets of Germany by 2022. To supply this number of vehicles across the whole country, the German National Platform for Electric Mobility estimates that around 77,000 public charging points will be required.

Source: German Association of Energy and Water Industries (BDEW, as of 14/12/2018)

Jörg Hofmeister

Amadeus Regerbis

How long does the charging process take at this type of station? And what is the range?
Hofmeister: This is highly dependent on the size of the battery and the charging capacity of the model of electric car ...
Regerbis: ... as a rule of thumb, 30 minutes of charging at a 150 kilowatt charging station is sufficient for 300 to 400 kilometres.

What is the current level of demand placed on the existing charging stations?
Hofmeister: It is important to say first of all that the roll-out of electromobility infrastructure for long-distance journeys was carried out very quickly. Germany was not any slower than other countries in this respect. However, the infrastructure is far from being used to full capacity because the number of e-cars is still too low. The car industry now needs to do its homework and launch long-range e-cars on the market at reasonable prices.

"The car industry now needs to do its homework and launch long-range e-cars on the market at reasonable prices."
Jörg Hofmeister

Regerbis: However, the situation could change very quickly, especially as the car industry is currently under pressure and has announced huge investment. To ensure that we can respond flexibly when it comes to charging infrastructure, we have designed our charging stations so that they can be quickly scaled up. This applies to both the number of charging points and also the charging capacity.

Assuming that there is an increase in demand – what are the biggest hurdles to the further expansion of the infrastructure in Germany?
Regerbis: If I could ask for anything, it would be the quicker realisation of the grid connections. Yet there is also a bottleneck in terms of construction. The service providers in the area of underground construction are fully booked months in advance.
Hofmeister: Another important issue is the availability of the required hardware, by which I mean quick-charging points with a capacity of 150 kilowatts and more.

If we look into the future, can you imagine other areas of cooperation between EnBW and Tank & Rast beyond that of charging stations – especially with respect to the increasing level of digitalisation?
Hofmeister: Definitely. I only have to think about things like automated driving or shared and connected mobility and I can see many common themes where closer cooperation would be beneficial.
Regerbis: Our cooperation is geared towards the long term and characterised by reliability, commitment and trust. The ideal requirements, in our opinion, for being able to offer our customers real added value both now and in the future.

Contents

Combined management report of the EnBW Group and EnBW AG

Condensed financial statements of the EnBW Group

Corporate bodies

Service

Navigation

The integrated management of EnBW comprises financial and non-financial goals in the dimensions:

Finance | Strategy | Customers and society | Employees | Environment

TOP Our key performance indicators are labelled with this symbol.

The cross-references take you to further information within this report or to the definition of terms in the glossary in the service section at the end of the report. You will also find the financial terms here.

Note

We have also published an online version of the Integrated Annual Report 2018 at www.enbw.com/report2018.

The full set of financial statements of the EnBW Group 2018 including the notes to the consolidated financial statements and the declaration of corporate management 2018 of the EnBW Group and EnBW AG including the corporate governance report 2018 are not included in this Integrated Annual Report 2018. Together with the unqualified auditor's report, they form part of the Integrated Annual Report 2018 – Extended Version, which is available exclusively in PDF format on our website at www.enbw.com/report2018-downloads. All financial publications for the 2018 financial year can be found there.

The cross-references do not form part of the audited management report.

Integrated Annual Report 2018 of EnBW

Interview with the Board of Management

Dr. Hans-Josef Zimmer
born 1958 in Merzig
- Member of the Board of Management
- Chief Technical Officer since 1 January 2012
- appointed until 31 May 2021
- lives in Steinfeld (Pfalz)

Thomas Kusterer
born 1968 in Pforzheim
- Member of the Board of Management
- Chief Financial Officer since 1 April 2011
- appointed until 31 March 2024
- lives in Ettlingen

Dr. Frank Mastiaux
born 1964 in Essen
- Chairman of the Board of Management
- Chief Executive Officer since 1 October 2012
- appointed until 30 September 2022
- lives in Stuttgart

Colette Rückert-Hennen
born 1961 in Leverkusen-Opladen
- Member of the Board of Management since 1 March 2019
- Chief Personnel Officer
- appointed until 28 February 2022
- lives in Bonn

Dr. Bernhard Beck LL.M.
born 1954 in Tuttlingen
- Member of the Board of Management and Director of Personnel
- Chief Personnel Officer since 1 October 2002
- appointed until 30 June 2019
- lives in Stuttgart

The interview with the members of the Board of Management was held by Uwe Wolfinger.

As of 7 March 2019

EnBW is evolving yet also remaining true to itself. In an interview with the whole Board of Management, the members explain how the company will utilise its core expertise and a clear strategy to successfully shape the energy world of the future and areas beyond it.

Dr. Mastiaux, how did EnBW perform in the 2018 financial year?
Dr. Frank Mastiaux: The result achieved by our company last year was in line with our forecast. This shows that we are still on track with the implementation of our strategy and the realignment of our company. We are now increasingly positioning ourselves as a competent infrastructure partner beyond the energy sector.

"We are now increasingly positioning ourselves as a competent infrastructure partner beyond the energy sector."
Dr. Frank Mastiaux

Can you explain the repositioning process in a little more detail?
Dr. Frank Mastiaux: Well, it is in the DNA of our company to supply and operate things reliably and safely, such as power plants, regional and supra-regional electricity grids or even large wind farms. We are now increasingly transferring this core expertise from the energy sector to new, high-growth business fields with a promising future, such as the expansion of broadband, electromobility or the sustainable development of urban districts. This means we are combining our traditional strengths with important themes for the future. We also believe that it is just as important to pay attention to social aspects that are closely connected to some of these new activities as it is to simply provide good technology. In district development, for example, this means that we want to play our part in developing areas in which people really want to live. These smart districts not only require childcare facilities and meeting places for citizens, but also a butcher and a baker.

But this type of strategic evolution can only succeed if it is supported by the whole organisation ...
Dr. Frank Mastiaux: That's correct, which is why our overarching initiative "next level EnBW" is so important. The aim of the initiative is to make our entire company fit for the future. We want to improve in everything that we do, whether it means getting things done more quickly or promoting innovative strength. We don't just want to take small steps but aim to achieve significant leaps in quality across the entire organisation, with a clear focus on customer orientation, internationalisation, new business and internal cooperation. We don't think of it as a programme, but rather as a movement that involves everyone in the Group and gives people greater courage and skills to face new challenges.

Mr Kusterer, what does "next level EnBW" mean for the finance department?
Thomas Kusterer: Nothing less than taking the entire finance organisation of our company to a completely new level. Digitalisation will also play an important role. We will utilise the new technical possibilities offered by analytics, robotics and artificial intelligence to speed up our processes and procedures even further. We want to provide information in real time as far as possible and provide our business units with even more targeted and appropriate support – so that they can operate on the market as successfully as possible.

"We are taking the entire finance organisation of our company to a completely new level."
Thomas Kusterer

Did you make specific progress in this area in the past year?
Thomas Kusterer: Yes, an increasing level of automation has certainly made us more efficient but we can still do better. We have, for example, installed a robot to help with incoming invoices and we are currently working to achieve further leaps in quality in financial accounting with the aid of artificial intelligence. However, the most important thing is maintaining close, personal contact with our business areas. We can only make a valuable contribution when we know what data and information each individual business unit requires and in what form. Close contacts and good communication with one another are absolutely essential.
Dr. Hans-Josef Zimmer: I can only underline what has just been said. That's why for me "next level" also means networking the various skills that we have at our company even more closely – and very importantly – across departments so that we can find solutions by working together.

Dr. Zimmer, an important element of the EnBW strategy is further expanding the share of electricity generation accounted for by renewable energies ...
Dr. Hans-Josef Zimmer: ... and this is why we are planning, for example, to also construct Germany's largest solar park in Brandenburg. We want to grow further in the area of renewable energies, particularly as wind power and hydropower did not perform very well – mainly because of the weather – in 2018.

Photovoltaics were not a main focus at EnBW up to now. What has changed?
Dr. Hans-Josef Zimmer: The prices for solar panels have fallen by 90 percent in the last 10 years. This has made solar parks with an output of 50 to 60 megawatts or more an interesting prospect from an economic standpoint, even without government funding. This is just one of the reasons as to why we are now investing in solar energy and establishing a third pillar of business in the area of renewable energies alongside wind power and hydropower. As part of our internationalisation activities, we could also imagine constructing solar parks outside of Germany.

"As part of our internationalisation activities, we could also imagine constructing solar parks outside of Germany."
Dr. Hans-Josef Zimmer

Against the background of the Energiewende, how important is it that EnBW is not just an energy generator and supplier but also a grid operator?
Dr. Hans-Josef Zimmer: Extremely important because ultimately the grid forms the backbone of the Energiewende. Energy that is generated in the north of Germany also needs to be transported to the south of the republic. This requires highly efficient transmission grids. It is also important not to forget the distribution grid, which we will also strengthen. After all, this is where the energy that is produced in lots of small, private units is collected. The fact that we are also grid operators – not just for electricity, but also for gas by the way – gives us a competitive advantage. It allows us to offer our customers solutions across the entire value added chain. A good example is electromobility, because for this we need renewable energies, we have to integrate the charging infrastructure into the grid and we also need to offer attractive products to customers.

Evolution, repositioning and "next level EnBW" – all of these themes are reliant on committed employees. Where do you see the biggest challenges in this area?
Dr. Bernhard Beck: We want to achieve significant leaps forward in every respect. Therefore, it is necessary for us to have competent employees on board in all areas both now and in the future. In this context, we are relying on targeted employee development activities and also on securing

additional skills from outside the company. The market for skilled workers is currently very competitive. We are working closely together with the business units to identify suitable candidates for each position and secure them for our company. Continuous cultural change is one of the things that we will need to take us to the "next level".

Where do you currently stand with respect to this "cultural change" in early 2019?
Dr. Bernhard Beck: We are making good progress and it will enable us to cooperate on an interdepartmental basis to an even greater extent in the future. How can I help you and how can you help me? How can we achieve things even more quickly? These are the questions that we need to ask ourselves across the company so that together we can successfully position ourselves to tackle new business fields such as electromobility or district development. And whether we are able to identify the opportunities offered by digitalisation is ultimately a question of attitude. After all, cultural change begins in the mind.

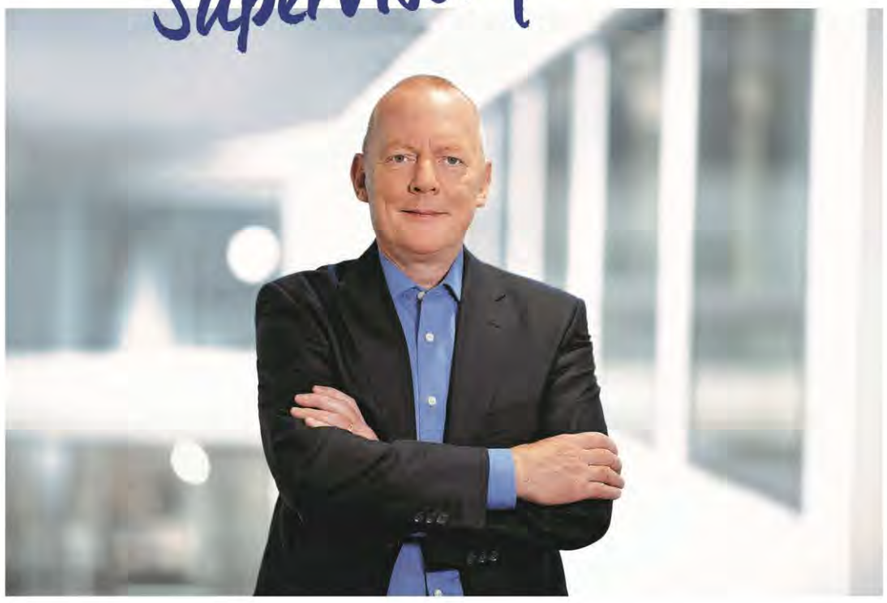
"Cultural change begins in the mind, it is a question of attitude."
Dr. Bernhard Beck

Mrs Rückert-Hennen, where are you going to provide impetus as the new member of the Board of Management team?
Colette Rückert-Hennen: I am delighted to be able to continue the successful work carried out by Dr. Beck over many years and believe that there are primarily three main tasks: developing expertise that is fit for the future in all of our employees, an unconditional focus on our customers and diversity – and I don't just mean gender diversity. It will mean that EnBW continues to be the EnBW we all know but also becomes more open at the same time.

You mean viewing diversity as a strength in other words?
Colette Rückert-Hennen: Yes! Heterogeneous teams comprising young talent, experienced employees and international colleagues have the potential for great strength – for one, united company.

Dr. Mastiaux, EnBW is preserving its own identity but, at the same time, shaping the energy and infrastructure world of tomorrow – would this be a good description of how things will be in 2025?
Dr. Frank Mastiaux: Yes, this is the direction in which we are heading. We will still be an energy company in 2025 but we will also be an infrastructure supplier beyond the traditional energy sector. We will be a partner that not only offers purely technical expertise, but that also has a good understanding of the importance of social interaction and people's needs. In this sense, we will to some extent be returning back to the roots of our company because EnBW was always seen as a "caring company" in the past. In some ways, "back to the future" is an appropriate motto.

Report of the Supervisory Board



Lutz Feldmann
Chairman of the Supervisory Board

The Supervisory Board dutifully and comprehensively performed all of the tasks incumbent on it in the 2018 financial year as required by law and the Articles of Association. It regularly advised the Board of Management on its management of the company and continuously accompanied and monitored all important management measures for the Group. In the process, the Supervisory Board was involved in all decisions of fundamental importance to the company and the Group.

The Board of Management regularly, comprehensively and promptly informed the Supervisory Board about all relevant aspects of intended business policies and other fundamental issues relating to business planning and also provided reasons for any discrepancies between the actual development of business and the plans and targets reported at an earlier date. In addition, the Board of Management informed the Supervisory Board about the economic position of the company and the Group including, amongst other things, the profitability of the company (especially the equity), the development of business (especially the revenue and earnings, the net assets, financial position and results of operations, as well as HR development at the company) and those business transactions that could be of significant importance for the profitability or liquidity of the company. Furthermore, the Board of Management informed the Supervisory Board about the risk situation of the Group and of individual areas of the Group, corporate strategy and planning, risk management, the internal control system and compliance.

Key topics of the discussions at the plenary meetings of the Supervisory Board

In the 2018 financial year, the Supervisory Board dealt extensively with verbal and written reports and proposals for resolutions issued by the Board of Management at its six ordinary meetings on 16 February, 20 March, 7 May, 12 July, 27 September and 5 December. In addition, it requested reports and information from the Board of Management on individual topics, which were promptly and comprehensively provided in each case. The key topics of the discussions and resolutions in the plenary meetings beyond the themes mentioned above were:

- In-depth consultations and discussions with the Board of Management about long-term strategic planning (with a focus on conventional generation, offshore and onshore wind power, the Turkish business, critical system infrastructure and selective internationalisation within the Renewable Energies business segment)
- Approval for the submission of a bid in order to participate in an offshore wind auction as part of an internationalisation project
- Approval for the submission of a bid as part of the EU tender process "Special technical equipment for grids"
- Regular reporting on the operation, safety and, where relevant, dismantling of the nuclear power plants
- Consultation on the results and the technical and commercial impact of the inspection of Block 2 at the Neckarwestheim power plant
- Approval for the decommissioning of the steam section of Block E at the Lausward site
- Consultation on the grid construction project "SuedLink" of TransnetBW GmbH
- Regular reporting on major investment projects, as well as other projects that form part of the generation strategy (renewable and conventional generation)
- Approval of the sale of VNG Norge AS and its subsidiary VNG Danmark ApS by VNG AG
- Approval for the conclusion of a gas procurement contract with OOO Gazprom Export by VNG Handel & Vertrieb GmbH
- Approval of measures to finance the joint venture Borusan EnBW Enerji yatirimlari ve Üretim A.S. and of the proportionate financing of the expansion of the Kiyiköy wind farm by the joint venture as well as consultations on the effects of the political events and developments in Turkey on the Turkish business of EnBW AG
- Approval of the budget for the 2019 financial year and acknowledgement of the medium-term planning for the period 2020 to 2021 consisting of the Group earnings, finance, investment and personnel plans, as well as the result (HGB) and liquidity plans of EnBW AG
- Defining the level of the short-term variable remuneration for the Board of Management for 2017 and the long-term variable remuneration for the Board of Management for 2015 (performance period 2015 to 2017)
- Examining the appropriateness and adjustments to the remuneration for the Board of Management
- Defining the targets for the short and long-term variable remuneration for the Board of Management for 2019
- Consultation on the legal and economic effects in relation to the suspected irregularities in the business relationships with companies in the Bykov Group
- Reappointment of the Chief Financial Officer Thomas Kusterer for a further period of five years
- Appointment of Colette Rückert-Hennen to take over responsibility for the personnel remit on the Board of Management starting in 2019
- Consultation on the current advertising and image campaign of EnBW AG
- Consultation on the annual compliance and data protection report and the agenda for the following period
- Reporting on the progress and results of the collective remuneration negotiations
- Reporting on the status of information security
- Regular reporting on the development of market prices for electricity, fuels and CO_2
- Regular reporting on the key indicators for occupational safety and health protection and exceptional events in the EnBW Group
- Consultation on investment management of the fully consolidated Group companies and how minority shareholdings held by local authorities are managed
- Approval of the proposal made at the Annual General Meeting on the appointment of the auditor for the 2018 financial year
- Completion of a selection process in accordance with EU Regulation 537/2014 and passing a resolution on the future auditor for the 2019 financial year onwards
- Regular consultation on the development of the financial ratings of EnBW AG
- Approval for the issuing of a so-called "green bond" with a volume of €500 million
- Consultation on the digital transformation of EnBW AG and the EnBW Group
- Appointment of replacement members to and rearrangement of the committees of the Supervisory Board due to members stepping down from the Supervisory Board as part of revising and updating the rules of procedure for the Supervisory Board, setting up a new digitalisation committee (from 2019)

Aside from the meetings, the Supervisory Board was informed in writing by the Board of Management about all business transactions of particular importance for the company or the Group. In addition, there was ongoing communication between the Chairman of the Supervisory Board and the Board of Management, particularly with the Chairman of the Board of Management, in order to discuss issues relating to the strategic positioning, planning, business development, risk situation, risk management, compliance, important individual transactions and currently pending decisions.

There was a consistently very high attendance rate at the individual meetings of the Supervisory Board. The majority of the members of the Supervisory Board attended all meetings of the Supervisory Board. No member of the Supervisory Board participated in less than half of the meetings.

Work of the committees

In order for the Supervisory Board to perform its functions efficiently, the committees it set up once again met regularly in the past financial year. The respective members of the committees are listed on p. 146 of the Integrated Annual Report 2018. The Chairpersons of the committees regularly reported comprehensively on the work of the committees at each subsequent plenary meeting of the Supervisory Board.

Corporate governance

The Supervisory Board also paid close attention to the various issues relating to corporate governance in the 2018 financial year. These issues are described in detail in the corporate governance report. The corporate governance report is part of the (Group) declaration of corporate management, which the company has published on its website (www.enbw.com/corporate-governance) in accordance with section 289f (1) sentence 2 and section 315d sentence 2 of the German Commercial Code (HGB).

Audit of the annual and consolidated financial statements

Following a thorough examination by the audit committee, the Supervisory Board undertook a detailed review of the annual financial statements and consolidated financial statements as of 31 December 2018 that were audited and issued with an unqualified audit opinion by KPMG AG Wirtschaftsprüfungsgesellschaft, and of the combined management report including the non-financial declaration for the 2018 financial year. The final results of its own reviews did not lead to any reservations on behalf of the Supervisory Board. It approved the audit results of the independent auditor and endorsed the annual financial statements prepared by the Board of Management as of 31 December 2018 – which have thus been ratified – and the consolidated financial statements as of 31 December 2018, as well as the combined management report including the non-financial declaration for the 2018 financial year.

Reference to the complete version of the report of the Supervisory Board

Further details on the topics "Work of the committees", "Corporate governance", "Audit of the annual and consolidated financial statements" and "Personnel changes at the level of the Board of Management and Supervisory Board" can be found in the full version of the Report of the Supervisory Board made available to the public on the company's website at www.enbw.com/corporate-governance.

Karlsruhe, 27 March 2019

The Supervisory Board

Lutz Feldmann
Chairman

About this report

Integrated reporting

In this Integrated Annual Report – as in previous years – EnBW also takes ecological and social aspects of the company's activities into account as well as economic aspects. We have published an Integrated Annual Report based on the recommendations of the International Integrated Reporting Council (IIRC) since the 2014 financial year, with the aim of achieving a holistic representation of the performance of the company. EnBW has been an active supporter of integrated reporting and the IIRC from the very beginning. We participate in the ongoing development of integrated reporting in various bodies such as the IIRC Business Network and IIRC Framework Panel. Thomas Kusterer, member of the Board of Management of EnBW, represents EnBW as a member of the IIRC and has also been a member of the EU Technical Expert Group on Sustainable Finance (TEG) [Glossary, p. 155] since July 2018. Using the EnBW 2020 strategy as a basis, EnBW applies the concepts behind integrated reporting to strive for the comprehensive integrated management of the company. By presenting financial and non-financial corporate goals – the achievement of which is measured using key performance indicators – we are seeking to promote integrated thinking within the company and underline the importance of being comprehensively oriented towards performance and our stakeholders. The corporate performance of EnBW is thus not only measured by financial results, as the short to long-term success of the company is also dependent on the decisions EnBW takes in response to the constantly changing economic, ecological and social conditions. More about integrated reporting at EnBW can be found at www.enbw.com/integrated-reporting.

Financial publications 2018

Integrated Annual Report 2018

This report is published in print and in PDF format. It contains the combined management report of the EnBW Group and EnBW AG, as well as the condensed version of the consolidated financial statements without the notes to the financial statements. Selected content from this report and additional information on aspects of sustainability can be found in the online report at www.enbw.com/report2018.

Integrated Annual Report 2018 Extended Version

The extended version of the Integrated Annual Report 2018 contains the complete annual financial statements of the EnBW Group, including the notes as well as the declaration of corporate management. This document is only available as PDF in German and English.

Financial statements of the EnBW AG 2018

This document is published in PDF format and contains the consolidated financial statements.

Declaration of corporate management 2018

of the EnBW Group and EnBW AG including the corporate governance report 2018. This document is contained in the Integrated Annual Report 2018 – extended version, but is also available as a PDF file in German and English.

All documents relating to the financial statements for the 2018 financial year can be found at www.enbw.com/report2018-downloads.
We publish the quarterly statements and the six-monthly financial report at www.enbw.com/financial-publications.

Together with existing legal requirements for strengthening non-financial reporting by companies in their management reports and Group management reports (CSR Directive Implementation Act), the IIRC reporting principles and elements create the foundations for integrated reporting. Some of the recommendations found in the IIRC reporting principles cannot be fully implemented because the different regulations are not compatible with each other. The Integrated Annual Report 2018 of EnBW contains the combined management report of the EnBW Group and EnBW AG in accordance with the regulations found in commercial law. The full consolidated financial statements including the notes to the consolidated financial statements and the (Group) declaration of corporate management 2018 including the corporate governance report 2018 are not included in this report. However, they are available to download at www.enbw.com/report2018-downloads.

The contents of this Integrated Annual Report exclusively serve to provide information and do not constitute an offer or an investment recommendation. Please take this into consideration and also refer to the other important notes on p. 160.

Continued development of integrated reporting

We have made our reporting more concise and transparent over the last few years to meet the increased needs of stakeholders for more information. In the Integrated Annual Report 2018, we have continued this development further and stabilised the process. Following substantial changes in the previous year due to the implementation of the legal requirements for strengthening non-financial reporting by companies in their management reports and Group management reports (CSR Directive Implementation Act) and the associated preparation of a non-financial declaration, another main focus this year was stabilising the internal processes with respect to reporting and to continuity in external reporting.

Through the participation of the EnBW Chief Financial Officer on the international Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, p. 155), EnBW actively supports the strengthening of climate-related risk reporting by companies (www.enbw.com/responsibility). In this Integrated Annual Report, we have taken into account the recommendations published by the TCFD in June 2017. The aim is to present how EnBW handles climate-related risks in a clearer and more understandable way. Alongside an overview of the EnBW scenario analysis to present the robustness of our business model in relation to climate protection (p. 39), a further development in the 2018 financial year was the adjustment of the investment guidelines for the EnBW Group. The influence that significant investment projects will have on the environment and thus on the climate protection targets and figures will, in future also be presented. This will act as the basis for approval by the investment committee of the Board of Management. An overview of the contents for this complex range of topics can be found in the index of TCFD recommendations on p. 136.

We will also strive in future years to continuously improve our integrated reporting. Our plans for 2019 thus include the continuous further development of the content in this report in accordance with the requirements for a non-financial declaration and the disclosures recommended by the TCFD.

Main elements of the further development of the Integrated Annual Report 2018 of EnBW

Topic	Further development	Page reference
Materiality analysis	› The materiality analysis process was updated in the 2018 financial year › Closely linked to the process for developing the company's strategy	page 59 f.
TCFD recommendations	› Stricter governance (anchoring climate protection targets in the investment process)	page 88, page 136 (index)
Interdependencies	› Continuation and stabilisation of already implemented presentation	page 53 ff.
Non-financial declaration	› Establishment and stabilisation of internal processes › Further development of content in accordance with the requirements of the CSR Directive Implementation Act	page 135 (index)
Report on opportunities and risks	› Continuation of the already implemented presentation of the non-financial opportunities and risks with respect to the non-financial declaration and the TCFD recommendations	page 114 ff.

Basis for the presentation of the report

The information about the net assets, financial position and results of operations of the EnBW Group is based on the requirements of the International Financial Reporting Standards (IFRS), and, where applicable, German commercial law and German accounting standards (GAS). In this context, sections 289b and 315b HGB "Obligation to provide a non-financial (Group) declaration" must be applied from the 2017 financial year. As in the previous year, we have fully integrated the non-financial declaration into the combined management report based on our integrated reporting. Internal control mechanisms ensure the reliability of the information presented in this report. Furthermore, this Integrated Annual Report is based on the recommendations for reporting principles and reporting elements contained within the IIRC framework.

The selection of topics and the level of detail given to them in this Integrated Annual Report is based, as in previous years, on their materiality. The process pays particular attention to the key themes discussed internally in the management bodies and addressed in the external communication (p. 59 f.) and was continuously incorporated into the strategy in the 2018 financial year.

The reporting of sustainability issues has been based since the 2017 financial year on the GRI standards, including the Electric Utilities Sector Supplement. Further information on the GRI Content Index can be found at www.enbw.com/gri-index. Further information on the fulfilment of other sustainability standards is available on our website at www.enbw.com/performance-indicators. Our sustainability reporting also complies with the Communication on Progress requirements for the UN Global Compact and is based to an increasing extent on the UN Sustainability Goals (www.enbw.com/green-bond). These two framework standards, as well as the UN 2030 Agenda for Sustainable Development, have been used as the basis for the non-financial declaration.

All data and calculation methods used for this Integrated Annual Report are based on German and international standards for financial and sustainability reporting. The responsible specialist units applied representative methods in each case for the collection of all data and information for the reporting period.

The reporting period comprises the 2018 financial year. We took into account all relevant information up to 7 March 2019. Along with EnBW AG, with its headquarters in Karlsruhe, Germany, the group of consolidated companies of EnBW for financial reporting also includes all of its key subsidiaries. The reporting limits for the non-financial performance indicators correspond to the scope of consolidation for financial reporting, unless otherwise stated. In addition, we have also taken other issues into account in various chapters of this Integrated Annual Report, especially against the background of the legal requirement for a non-financial declaration, in order to provide a holistic representation of the performance of the company. The index for the non-financial declaration of the EnBW Group and EnBW AG is presented on p. 135.

Independent auditing and evaluation

The condensed financial statements for the 2018 financial year that form part of the Integrated Annual Report do not include the notes to the consolidated financial statements and the (Group) declaration of corporate management 2018, including the corporate governance report 2018. The full set of consolidated financial statements – including the notes to the consolidated financial statements – and the management report for the company and the Group are included in the extended version of the Integrated Annual Report 2018. They were audited for the 2018 financial year by KPMG AG Wirtschaftsprüfungsgesellschaft as the auditor and Group auditor elected by the Annual General Meeting of EnBW Energie Baden-Württemberg AG on 8 May 2018. Following an extension of the auditing mandate by the Supervisory Board, KPMG AG Wirtschaftsprüfungsgesellschaft also audited the non-financial declaration with reasonable assurance. The high level of integration in the whole reporting process is underlined by this audit of the complete Integrated Annual Report with reasonable assurance. KPMG AG Wirtschaftsprüfungsgesellschaft arrived at the overall conclusion that the entire audit did not lead to any reservations and issued an unqualified audit opinion. This includes the non-financial declaration. The full set of consolidated financial statements and the combined management report for the company and the Group for the 2018 financial year, as well as the unqualified audit opinion issued by the auditor, are accessible to the public on the website of EnBW Energie Baden-Württemberg AG at www.enbw.com/report2018-downloads.

Combined management report

of the EnBW Group and EnBW AG

Fundamentals of the Group

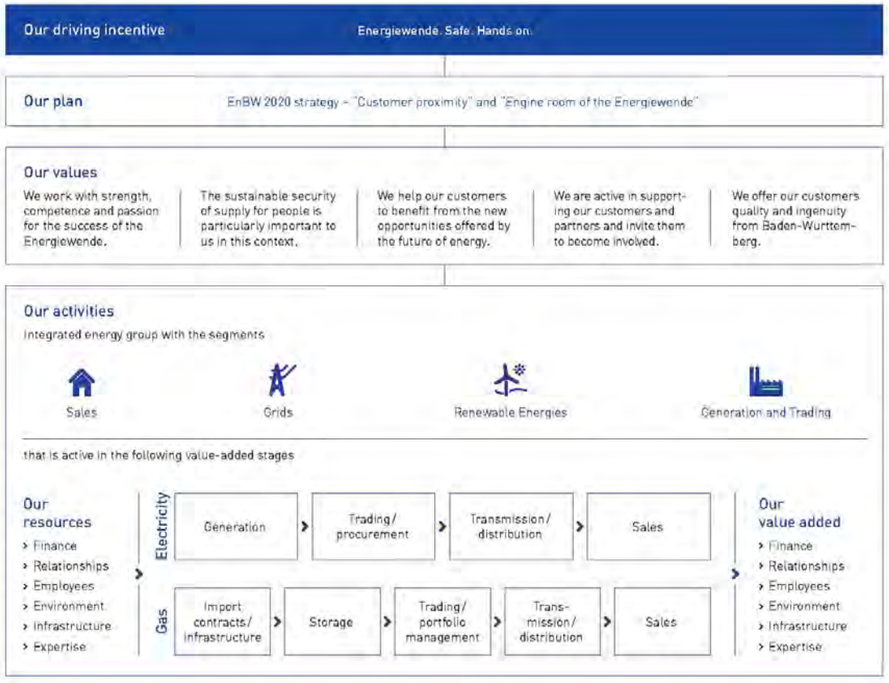
Business report

Fundamentals of the Group

Business model

Business principles

Business model



As an integrated energy company, EnBW operates along the entire energy industry value chain in four segments: Sales, Grids, Renewable Energies, and Generation and Trading. We draw on a variety of resources – from finances through to expertise – for our corporate activities. As a result of the efficient application of these resources, we create value for ourselves and our stakeholders. EnBW has a **diversified business portfolio** with a once again increasingly favourable risk-return profile. Following our realignment as part of the Energiewende, the overall share of adjusted EBITDA accounted for by the regulated grid business and the share accounted for by renewable energies are both increasing.

We have closely analysed future revenue sources in the energy industry to **further develop our business portfolio**. According to our estimations, revenue flows in the energy industry will shift considerably. Renewable energies, grids and the decentralised solution business are growing in importance (p. 48). On this basis, we have developed the EnBW 2020 strategy guided by the principle "Energiewende. Safe. Hands on.", which charts the course for the future development of our business model and strengthens the future viability of the company. The two complementary operating models of "Customer proximity" and the "Engine room of the Energiewende" lie at the core of the EnBW 2020 strategy (p. 49).

In the **development of the EnBW strategy post 2020**, we want to increasingly place our focus on the aspect of infrastructure within existing business fields and also exploit new growth opportunities above and beyond the energy sector (p. 50).

With strength, competence and passion, EnBW is committed to the **success of the Energiewende** and guarantees a sustainable and reliable supply of energy. We invite our customers and partners to join us in shaping the future energy landscape and benefit from new opportunities. We convince our customers through quality and creativity, and are acutely aware of our responsibility towards our employees. We are active along the entire electricity and gas value chain. Thanks to our comprehensive and profound system competence, we remain excellently positioned despite the fundamentally changed framework conditions resulting from the Energiewende. Due to the increasing decentralisation of the energy system, we have firmly anchored customer orientation and joint business development with partners into our company. Our current activities are governed more than ever by the fostering of dialogue, a solution-based approach and the sense of partnership.

Digitalisation is having a greater and greater influence on the way we think and act in our company. EnBW has been rigorously pushing forward its own digitalisation transformation since 2015 and we are now working on more than 180 individual projects – the so-called digitalisation initiatives. We are focussing here on three main areas: **products and processes, technologies** and **people and organisations**. Products and processes deals, on the one hand, with optimising processes in the company with the aid of digital technologies or completely rethinking them. This includes, for example, not only the digital interaction with customers but also the digitalisation of our core business processes such as our accounting and billing. On the other hand, the development of digital business models and digital products, as well as making better use of existing data, are important goals (p. 94 f.). Technologies act as the foundation for digitalisation. The use of sensors for gathering data even from older power plants is just as important for EnBW as artificial intelligence and the Internet of Things (p. 64 ff.). We are also looking in-depth at the fast-developing blockchain technology that promises great potential for change. In order to verify that this is the case, we are investing in the development of specific applications in this area. The third area of people and organisations deals with the question of what skills our employees require to work in a digital environment and how they can best cooperate with each other. EnBW is introducing new working methods such as agile project management methods and training some of its employees and managers so that they can identify and exploit the opportunities offered by digitalisation in their own working environments (p. 96 ff.). The graphic on p. 55 shows the interdependencies between key performance indicators using digitalisation initiatives as an example.

Assessment of the robustness of our business model in terms of climate protection

EnBW has analysed the robustness of its business model based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, p. 155). The EnBW strategy takes into account the demands of the Energiewende and climate protection. Accordingly, an evaluation of the way the Energiewende could possibly develop over the coming years, including the opportunities and risks for the business of EnBW, constitutes a decisive component of our market analyses (p. 119).

The future development of the German and European electricity markets is particularly important in this context. As part of the analysis, we initially create scenarios for the main input parameters – such as the development of demand, changes to the power plant portfolio or assumptions about price-relevant fuels. Using these as a basis, possible paths for the long-term development of electricity prices – one of the most important market factors for the business of EnBW – can be derived. The scenarios are geared towards achieving the international climate protection targets (such as limiting greenhouse gas concentrations to 450 ppm [parts per million]) and the resulting targets and measures derived by the German government (a reduction of at least 80% in CO_2 emissions by 2050 in comparison to 1990). The results obtained from applying this model not only provide information on electricity prices but also on other relevant market trends in areas such as renewable energies or electromobility. Overall, these results enable us to assess the robustness of our strategic planning with consideration to developments caused by climate change.

In order to evaluate the robustness of our business model against the backdrop of social efforts to limit climate change and achieve the two-degree target, the **following scenarios** are used:

- The Energiewende continues to progress on its current path with a focus on the expansion of renewable energies in the electricity sector
- Rigorous alignment towards climate protection in the context of the efforts being made worldwide to achieve the ambitious climate protection targets
- Slower reorganisation of the energy system against the background of weaker economic growth below the long-term potential
- The Energiewende is confined in an international environment that is oriented toward strong economic growth, also in conventional industrial sectors

Value added

Value added for EnBW and its stakeholders

	Finance	Relationships (customers/society)	Employees	Environment	Infrastructure	Expertise
Resources of EnBW	A constantly solid financial structure (equity, debt, positive cash flow levels) for financing our business activities	Our customers are the central focus of our philosophy and actions. We actively promote dialogue with our stakeholders and thus build trust and social acceptance.	The expertise, experience and diversity of our employees contribute to the success of the company, supported by an effective and efficient HR policy.	Using the natural resources wind, water and sun to generate energy	We are one of the most important energy companies in Germany and Europe thanks to our power plants, electricity and gas grids and gas storage systems.	We develop models for new future business fields through our research and innovation activities.
Significant activities in 2018	› Issuing of a green bond with a volume of €500 million › Repayment made to CHF 100 million bond › Repayment made to senior bond with a volume of €750 million › All A-grade ratings	› Expansion of charging station infrastructure for e-mobility › Payment function EnBW mobility+ app › Decentralised energy generation for tenants via "EnBW Hausstrom" (EnBW Home Electricity) › Digitalisation of customer processes with EnPower › Development of new services and products in the area of safety for local authorities and companies › Financial participation by citizens in EnBW wind farms › "Communal Emergency and Crisis Management for Crisis Prevention" concept to support local authorities	› Recruitment of new skills required for strategic growth fields › "Digital Leadership" and "Next Level Leadership" management development programmes to develop new skills in an increasingly dynamic environment › "Digital pioneers" initiative to train experts in the digital world › Representative random sample surveys for Employee Commitment Index (ECI) › "New Mobility" – offers for employees › Promotion of diversity and inclusion › Projects and campaigns on occupational safety and health protection	› Expansion of generation from renewable energies: offshore and onshore wind and photovoltaics › Participating in the Task Force on Climate-related Financial Disclosures (TCFD) › Construction of the waste material processing centres at the sites in Neckarwestheim and Philippsburg › Funding programme "Stimuli for Diversity" for the protection of amphibian and reptile species › Foundation 2° – German Businesses for Climate Protection › Recertification of the environmental management system at EnBW AG and various subsidiaries	› Completion of the gas-fired CHP power plant in Stuttgart-Gaisburg › Progress of the construction work at the EnBW Hohe See and EnBW Albatros offshore wind farms › Progress of the ULTRANET and SuedLink HVDC projects by TransnetBW › Investment in the EUGAL European pipeline project by ONTRAS › Expansion of charging infrastructure for e-mobility › Expansion of broadband business › Netze BW publishes new expansion plan for high-voltage grid	› Internal spin-off company SMIGHT as first micro business unit › Joint EnBW and Bosch battery storage project in operation › Joint project between EnBW and the University of Stuttgart to develop efficient photovoltaic modules › Development of ADAZ (Application for Diagnosis, Analysis and Status Monitoring) for early identification of technical damage to wind power plants
Value added	**for EnBW** › TOP Securing profitability › TOP High level of financial discipline › TOP Increasing Group value **for stakeholders** › Paying interest punctually to our third-party lenders › Wages, salaries and pensions for active and former employees › Tax payments to the state › Appropriate dividends for our shareholders	**for EnBW** › TOP Increasing share of result from "Customer proximity"/Sales › TOP Increasing customer satisfaction: "Customer proximity" › TOP Improving reputation › Customer loyalty: strengthen trust in EnBW as a partner and supplier **for stakeholders** › TOP Increasing customer satisfaction: "Customer proximity" › Engaging in social issues with activities for our end customers, business partners and local authorities and their citizens	**for EnBW** › TOP Increasing employee commitment (ECI) › TOP Improving occupational safety (LTIF) › Always having the right employees with the right skills in the right place **for stakeholders** › TOP Measuring employee identification with the company based on the Employee Commitment Index (ECI) › Engagement in the area of diversity ("Diversity Charter") › Offering trainee and degree places › Multi-stage career integration programme for refugees	**for EnBW** › TOP Expanding renewable energies (RE) › TOP Reducing CO_2 intensity › Improving the carbon footprint › Safe dismantling of nuclear power plants **for stakeholders** › TOP Expanding and integrating RE for customers and society › TOP Reducing CO_2 intensity › Energy-efficient products for our customers › Responsible handling of resources	**for EnBW** › TOP Expanding renewable energies (RE) › TOP Increasing Group value › TOP Reducing CO_2 intensity › Driving the Energiewende › Opening up new business fields **for stakeholders** › TOP SAIDI: Supply reliability for our customers (maintained by investments in upgrading grids and expanding transmission grids through our grid subsidiaries) › TOP Reducing CO_2 intensity › TOP Investing in the expansion of RE for customers and society › Contracting third-party companies and suppliers	**for EnBW** › TOP Securing profitability and increasing share of result from "Customer proximity"/Sales by identifying new sources of revenue › Early identification of medium to long-term market opportunities and trends **for stakeholders** › New smart products for the benefit of our customers › EnBW as a provider of venture capital for the development of the portfolio
	Financial position, page 84 ff. Key performance indicators, page 51 ff. Value added statement, page 42	Customers and society goal dimension, page 94 ff. Key performance indicators, page 51 ff. In dialogue with our stakeholders, page 59 ff.	Employees goal dimension, page 96 ff. Key performance indicators, page 51 ff. In dialogue with our stakeholders, page 59 ff.	Environment goal dimension, page 101 ff. Key performance indicators, page 51 ff. Overview of the segments, page 46 f.	Overview of the segments, page 46 f. Key performance indicators, page 51 ff. The EnBW Group, page 80 ff.	Research, development and innovation, page 64 ff. Key performance indicators, page 51 ff. Overview of the segments, page 46 f.

Value added for EnBW and its stakeholders

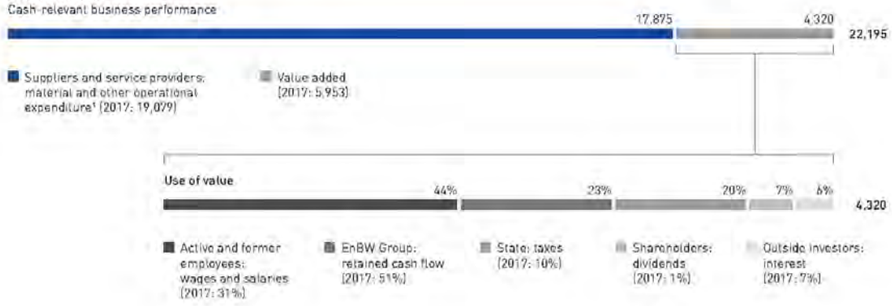
The aim of the corporate activities of EnBW is to add value in the short, medium and long term. This reflects corporate success, as well as competitiveness and future viability, and does not only depend on the company itself but also on the business environment, relationships with stakeholders (p. 59 ff.) and the application of a variety of different resources. As a result of the efficient use of these resources within the scope of our activities, we create value for ourselves and our stakeholders. We associate the concept of sustainable economic development with our aspiration to conduct all of our business activities in a responsible way. This is closely associated with our reputation, that is the public opinion our stakeholder groups hold about EnBW (p. 94). Information on the interdependencies between the key performance indicators can be found on p. 53 ff.

Value added statement

The value added statement indicates the degree to which EnBW contributes to the prosperity of society (stakeholders) and to further economic development, particularly in Germany and Baden-Württemberg, using its financial resources. Further information on the dialogue with our stakeholders is summarised in the chapter "In dialogue with our stakeholders" (p. 59 ff.).

We define value added as the cash-relevant business performance of EnBW in the past financial year minus cash-relevant expenses. The value added is derived from the cash flow statement and corrected based on the use of funds. Value added created in the EnBW Group amounted to 19.5% in the reporting year (previous year: 23.8%). As well as being used in the form of wages, salaries and pension payments for active and former employees, a further share is dedicated to payments to the state in the form of income taxes and electricity and energy taxes. After consideration of all stakeholder groups, the retained cash flow of the EnBW Group is available to the company for future investments without the need to raise additional debt (p. 88). Due to the reimbursement of the nuclear fuel rod tax (Glossary, p. 154), retained cash flow was significantly higher in the previous year. The reimbursement will be used by EnBW for the debt repayment in 2018 and also for investment in the period from 2018 to 2020.

Value added of the EnBW Group
in € million



1 Includes interest and dividends received, as well as the dedicated financial assets contribution. | As of 31/12/2018

Group structure and business radius

EnBW is organised according to the model of an integrated company. EnBW AG is managed through business units and functional units. Core operating activities along the entire energy industry value chain are concentrated in the business units. The functional units carry out Group-wide support and governance tasks. The EnBW Group consists of EnBW AG as the parent company and 171 fully consolidated companies, 23 companies accounted for using the equity method and three joint operations. Further information on the organisational structure can be found in the chapter "Corporate governance" under "Management and supervision" on p. 56 f.

Baden-Württemberg

EnBW has its roots in Baden-Württemberg. We are active here along the entire energy industry value chain and are positioned as a market leader. In the process, we are supported by a series of key subsidiaries.

Germany and Europe

We also operate throughout Germany and in Europe. Our entry onto the Swedish market via our Swedish subsidiary EnBW Sverige and initial activities in France, Taiwan and the USA demonstrate our focus on **selective internationalisation** in the area of renewable energies. We have already been represented in Denmark and Sweden by our subsidiary Connected Wind Services since 2016. In Turkey, we are active in the renewable energies sector with our Turkish partner Borusan.

The **most important participating interests** of EnBW in relation to the value added chain and their contribution to the result of the EnBW Group include the following groups of companies:

Energiedienst Holding (ED), based in Laufenberg, Switzerland, has around 900 employees and is an ecologically oriented German-Swiss listed company with various subsidiaries that is active in South Baden and Switzerland. ED exclusively generates green electricity primarily using hydropower. Alongside the supply of electricity, this group of companies offers its customers smart, networked products and services, including photovoltaic plants, heat pumps, electricity storage systems, electromobility and e-car sharing.

Pražská energetika (PRE), based in Prague, Czech Republic, has just over 1,500 employees and its core business activities include the sale of electricity and gas, the distribution of electricity in Prague, the generation of electricity from renewable energies and the provision of energy services. PRE is the third largest electricity supplier in the Czech Republic and the operator of a high-quality and reliable distribution grid. As part of its activities, PRE promotes the use of modern technological solutions and advises on the implementation of innovative technologies and achieving energy savings.

Stadtwerke Düsseldorf (SWD) is one of the largest municipal energy supply companies in Germany. It has over 3,140 employees and supplies SWD customers in Düsseldorf and the surrounding region with electricity, natural gas, district heating and drinking water, as well as providing waste disposal and street cleaning services in its city. In addition, the company's focus is placed on the needs-based development of networked urban infrastructures in the areas of energy, mobility and property.

VNG is based in Leipzig and has around 1,120 employees. It is a horizontally and vertically integrated corporate group in the European gas industry with more than 20 companies in six countries. It concentrates on its business areas of Gas Trading & Service, Gas Transport and Gas Storage. Using this core expertise as a basis, VNG is increasingly placing its focus on new business fields. These include, amongst others, biogas, digital infrastructure and district solutions. Through its independent transmission system operator ONTRAS Gastransport GmbH, the company operates the second largest German gas transmission grid.

Customers and sales brands

EnBW supplies **around 5.5 million customers** with energy and provides them with energy solutions and energy industry services. EnBW is one of the leading providers of energy and environmental services in Germany. Another focus is placed on the development of our cooperation with municipal utilities and local authorities. The supply of district heating and drinking water is also part of the range of services offered by EnBW.

EnBW and its subsidiaries differentiate between two customer groups: The **B2C** customer group includes retail customers, small commercial enterprises, the housing industry and agriculture. The **B2B** customer group encompasses major commercial enterprises and industrial customers, as well as redistributors, municipal utilities, local authorities and public entities.

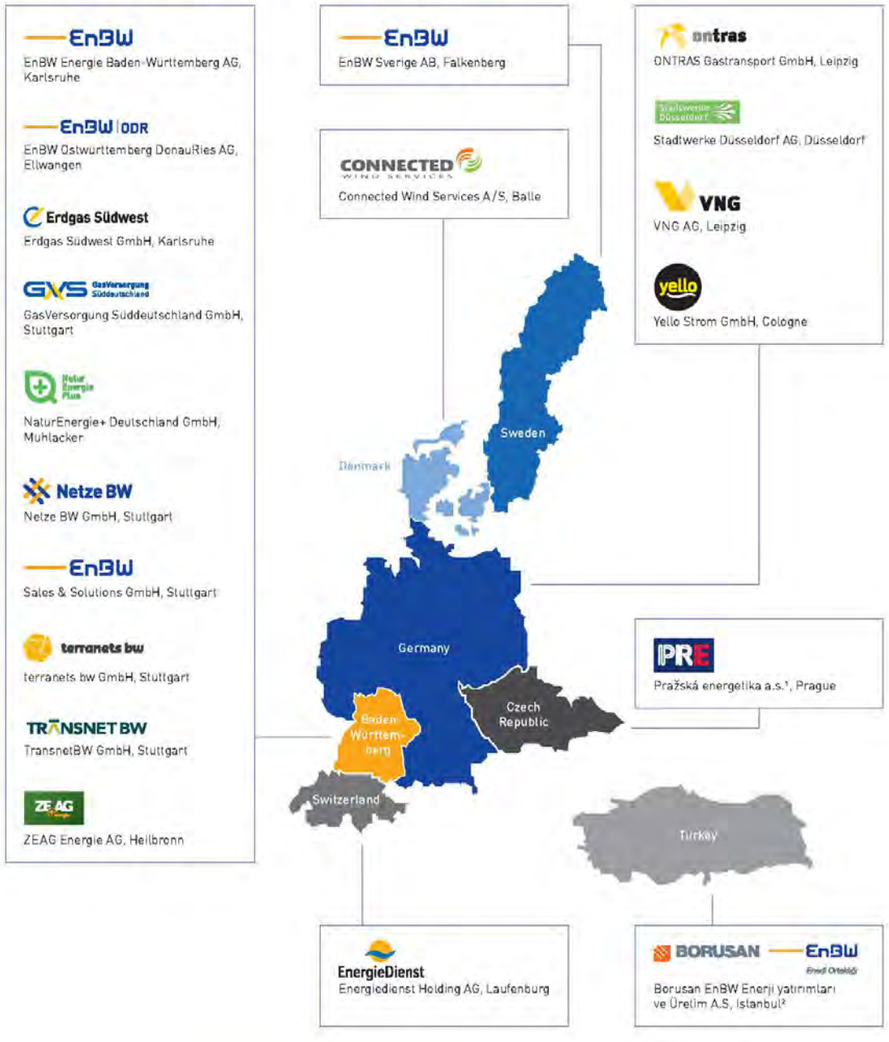
With its strong sales brands, EnBW is close to its customers and is consistently oriented to their needs. As an active partner for the energy system of the future, EnBW sells electricity, gas, district heating, energy industry services, energy solutions and drinking water in the B2C sector under the **EnBW brand** (www.enbw.com). These products and services focus on Baden-Württemberg. EnBW primarily sells electricity and gas, as well as solutions and digital services related to energy, to retail and commercial customers throughout Germany through the **Yello brand** (www.yello.de). The needs of ecologically oriented customers are addressed across Germany through the **NaturEnergiePlus brand** (www.naturenergieplus.de).

In addition, EnBW subsidiaries are active in the B2B sector under the **GVS brand** and in the B2C and B2B sectors under the **Erdgas Südwest, ODR** and **ZEAG brands**.

Under the **NaturEnergie brand** (www.naturenergie.de), ED sells green electricity and gas to retail customers in South Baden. It caters for business customers across Germany and in Switzerland. PRE sells electricity, gas, energy services and mobile communication services to retail and commercial customers in Prague and the surrounding region under the **PRE brand** (www.pre.cz). PRE also supplies electricity, gas and energy services to industrial customers across the Czech Republic under the PRE brand. Electricity and gas are sold in the Czech Republic under the **Yello brand** (www.yello.cz), primarily via online channels to households and commercial customers. SWD supplies retail and commercial customers in the B2C sector, as well as customers in the agricultural sector, with electricity, gas, heating and drinking water under the **Stadtwerke Düsseldorf brand** (www.swd-ag.de). In the B2B sector, the range of services is directed at business and industrial customers and marketed across Germany, with a focus on North Rhine Westphalia. VNG supplies gas to municipal utilities, regional supply companies and industrial and commercial companies in Germany and Europe – from full-service provision through to highly flexible products – under the **VNG brand** (www.vng.de). The company goldgas GmbH, a subsidiary of VNG, sells gas and electricity – especially to private households, commercial customers and property management companies in Germany – under the **goldgas brand** (www.goldgas.de).

Selected companies

Selected EnBW companies in Baden-Württemberg, Germany and Europe



1 Directly and indirectly held shares
2 Not fully consolidated, accounted for using the equity method

The full list of shareholdings can be found in the notes to the consolidated financial statements under [36] "Additional disclosures". The full set of consolidated financial statements is published at www.enbw.com/report2018-downloads. Further information: www.enbw.com/shareholdings

Our operating segments

Sales segment

The Sales segment encompasses sales of electricity and gas, as well as the provision of energy industry services such as billing services, energy supply and energy saving contracting (Glossary, p. 153) and new energy solutions. In this area, we exploit our broad energy industry and process-based expertise, as well as our existing relationships with our customers. Against the background of advancing digitalisation, we are optimising, amongst other things, our customer processes and expanding our digital range of products (p. 94 ff.).

Grids segment

The Grids segment encompasses the transmission and distribution of electricity and gas, the provision of grid-related services, e.g. the operation of grids for third parties, and the supply of water. Value added in the Grids segment is based on the existing infrastructure and the process know-how necessary to operate and expand this infrastructure efficiently. Furthermore, value added is anchored in the numerous close relationships with local authorities and citizens. The grid business will be expanded further at all voltage levels in the course of the Energiewende and will thus contribute to supply reliability. For example, our subsidiary TransnetBW, together with partners, is currently involved in planning two high-performance north-south connections using high-voltage DC transmission technology (HVDC) (Glossary, p. 153). Partnerships will also play a more important role in the distribution grid in future as we efficiently manage our customers' grid installations and infrastructures and prepare them to meet the new requirements.

Renewable Energies segment

The company's activities in the area of power generation from renewable energy sources – where we utilise the natural resources of water, wind and sun – are combined under the Renewable Energies segment. We are expanding renewable energies, above all in the areas of onshore and offshore wind energy and photovoltaics, and broadening our activities along the value chain (p. 102). The principle of partnership plays a central role in this context and we offer potential investors such as local authorities and private citizens, whom we attract with the aid of targeted models, the chance to participate in renewable energy projects. The value we add in this segment encompasses project development, construction and efficient operation, as well as the repowering (Glossary, p. 154) of the plants in the future.

Generation and Trading segment

The Generation and Trading segment encompasses electricity generation, the storage of gas, the trading of gas and electricity, the gas midstream business, the provision of system services (Glossary, p. 154) for the operators of transmission grids, the operation of reserve power plants, district heating, environmental services and the dismantling of power plants. This business is primarily based on the generation of electricity and heat from our coal, gas, pumped storage and nuclear power plants and our operational and optimisation expertise. While wholesale market prices have recovered, spreads (Glossary, p. 154) have remained at a low level (p. 78 f.). Our fossil fuel power plants will thus also remain under pressure in the future. The power plants operating on the market, as well as those power plants transferred to the grid reserve, make a significant contribution to the security of supply in Germany. As equal partners, we support our customers in the integration of their power plants into the market using our services and expertise – such as in the area of direct distribution.

Integrated Annual Report 2018 of **EnBW**

Overview of the segments

Sales

Tasks

Sale of electricity, gas, energy industry services and energy solutions; energy supply and energy-saving contracting; cooperation with local authorities; collaboration with municipal utilities

Significant events in 2018

- Expansion of electromobility: Further expansion of the charging infrastructure, also together with national and international cooperation partners, expansion of the product portfolio, EnBW mobility+ app with 22,000 charging stations across different countries, simplification of the pricing system when charging with the "Full with E" campaign
- Contracting: Modernisation and expansion of the combined heat and power plant at the Walsrode energy park, winning the Contracting Award, numerous concepts for the development of public properties
- Further acquisition of large customers in area of energy industry billing services
- Further digitalisation of customer processes and digital interaction with customers (e.g. via EnPower)
- Further intensification of the cooperative partnership models with municipal utilities and local authorities, such as in the SAFE project (core charging network for electric vehicles for electric cars in Baden-Württemberg)
- Expansion of services for local authorities in the area of urban planning and digital infrastructures

Sales in 2018

86.3 billion kWh gas (B2C / B2B)

36.4 billion kWh electricity (B2C / B2B)

Number of B2C and B2B customers

Around 5.5 million

Key figures in 2018

3,657 employees (as of 31/12/2018)

€270.6 million adjusted EBITDA in 2018

€132.4 million investment in 2018

12.5% share of adjusted EBITDA in 2018

Development of adjusted EBITDA (in € billion)

0.2 (2012) → +100% → 0.4 (2020)

Grids

Tasks

Transmission and distribution of electricity and gas as well as expansion of HVDC connections; provision of grid-related services; water supply; guaranteeing the security of supply and system stability

Significant events in 2018

- ULTRANET HVDC project: further preparations for the construction of the converter at the site in Philippsburg by TransnetBW in cooperation with EnBW Kernkraft
- SuedLink HVDC-project: plans adapted to meet the political guidelines (priority to underground cables) and other preparations for the construction of the converter at the site in Leingarten by TransnetBW
- Investment by ONTRAS in the EUGAL European pipeline project as part of ongoing construction
- Publication of the new expansion plan for the 110 kV high-voltage grid by Netze BW
- Netze BW was the first metering point operator to install a certified smart metering system for a customer
- #NETZlive: First transmission of forecasting data via the automated data exchange process between Netze BW and TransnetBW
- Grid integration for the expansion of charging infrastructure for electromobility; "E-Mobility Avenue" pilot project by Netze BW to examine charging behaviour and the effects on the electricity grid
- Upgrading the grids and connecting renewable energy power plants

Grid lengths in 2018

151,000 km Electricity transmission and distribution grid

24,000 km Gas transmission and distribution grid

Transmission volumes in 2018

64.3 billion kWh electricity

33.3 billion kWh gas

Key figures in 2018

8,920 employees (as of 31/12/2018)

€1,176.9 million adjusted EBITDA in 2018

€967.4 million investment in 2018

54.5% share of adjusted EBITDA in 2018

Development of adjusted EBITDA (in € billion)

0.8 (2012) → +25% → 1.0 (2020)

Renewable Energies

Tasks

Project development and management; construction and operation of renewable energy power plants

Significant events in 2018

- Continued construction of the offshore wind farms EnBW Hohe See and EnBW Albatros with total capacity of 609 MW
- Selective internationalisation with entry onto the Swedish market and initial activities in France, Taiwan and the USA
- Further expansion of the onshore portfolio: Through the acquisition and construction of 14 wind farms with total output of 178 MW in Germany and Sweden, EnBW has expanded the total output from onshore wind power to 718 MW
- Decision to invest and start of construction of first onshore wind farm in Sweden
- Opportunity for citizens to participate in seven newly built EnBW wind farms
- After the construction of 15 photovoltaic plants with an output of 22 MW, EnBW has a total photovoltaics portfolio of 99 MW

Generation portfolio in 2018[1]

7,203 GWh generation

1,955 MW installed output

Key figures in 2018

1,144 employees (as of 31/12/2018)

€297.7 million adjusted EBITDA in 2018

€476.0 million investment in 2018

13.8% share of adjusted EBITDA in 2018

Development of adjusted EBITDA (in € billion)

0.2 (2012) → +250% → 0.7 (2020)

Generation and Trading

Tasks

Advisory services, construction, operation and dismantling of thermal power plants; storage of gas; trading of electricity and gas, provision of system services; operation of reserve power plants; gas midstream business, district heating; waste management / environmental services; direct distribution of renewable energy power plants

Significant events in 2018

- Completion of the gas-fired CHP power plant in Stuttgart-Gaisburg with a heating capacity of up to 210 MW
- Extension of the inspection of Block 2 of the Neckarwestheim nuclear power plant to complete an extensive inspection programme
- Dismantling of nuclear power plants: Final dismantling approval for Obrigheim received, transfer of residual volumes of electricity from Block 1 to Block 2 of the Philippsburg nuclear power plant
- Construction of waste material processing centres at the sites in Neckarwestheim and Philippsburg
- Sale of VNG Norge AS and its subsidiary VNG Danmark ApS

Generation portfolio in 2018[1]

46,079 GWh generation

11,383 MW installed output

Key figures in 2018

5,419 employees (as of 31/12/2018)

€428.6 million adjusted EBITDA in 2018

€166.5 million investment in 2018

19.9% share of adjusted EBITDA in 2018

Development of adjusted EBITDA (in € billion)

1.2 (2012) → -80% → 0.3 (2020)

[1] The sums stated for the generation and installed output in the Renewable Energies and Generation and Trading segments are not identical to the totals for the EnBW Group. Some of the generation plants are assigned to other segments. The total generation of the EnBW Group is 53,492 GWh, of which 8,414 GWh or 15.7% is generated from renewable energy sources. The total installed output of the EnBW Group is 13,399 MW, of which 3,738 MW or 27.9% is from renewable energy power plants. The totals for generation and installed output for the Group are illustrated in detail on p. 102.

Strategy, goals and performance management system

Strategy

Market conditions and structures

The energy sector in Germany has been experiencing profound change since 2012 due to the Energiewende. The share of electricity generation accounted for by renewable energies is increasing, driven by regulatory funding mechanisms, the trend towards decentralisation and technological advances. Nuclear electricity generation will cease by 2022. The use of fossil fuels, above all brown coal and hard coal, continues to be the subject of intense political debate. Another driver of change in the energy sector are new patterns of demand amongst customers (local authorities, households, trade and industry) due to an increasing desire for autonomy and sustainability, as well as falling energy consumption due to improved energy efficiency (p. 72 ff.). The business models followed by energy supply companies are changing as a result.

Strategy process

The development of strategy at EnBW is governed by a uniform and structured process. This begins with our vision which is guided by the principle "Energiewende. Safe. Hands on." The Group strategy describes our positioning and how we differentiate ourselves from our competitors. Sustainability is an integral component of our Group strategy so that we can guarantee the creation of economic, ecological and social value for our stakeholders. We associate the concept of sustainable economic development with our aspiration to conduct our business activities in a responsible way.

The sustainability concept is aligned with the strategic guiding principles of EnBW and defines areas of action, targets and measures. Areas of action include, amongst others, the expansion of renewable energies, increasing employee commitment and guaranteeing a reliable supply (p. 52 f.). The concept takes into account external demands for sustainable corporate activities, derived from leading sustainability standards and ratings, as well as the integration of ecological and social aspects into the operating business (p. 60).

We shape the composition and strategic development of our business portfolio through our portfolio strategy. Our strategic goals are then defined and operationalised in a final step through the design of our business, investment and functional strategies.

Process for strategic goal achievement

Guiding principle and Group strategy

The EnBW Group strategy developed in accordance with our guiding principle encompasses two operating models that complement each other:

Customer proximity: The EnBW 2020 strategy places the focus on customers to an even greater degree. Targeted innovation management and short development times for new products and services will become key components. Cooperation with municipal utilities and local authorities will be expanded, primarily on the basis of partnership cooperation models. EnBW aims to gain an advantage over its competitors through the development of system and complete solutions for specific customer segments and a strong brand portfolio. An Innovation Campus supports the rapid development of forward-looking products. It is characterised by its focus on market proximity, bringing together the necessary expertise from the areas of research and development right through to sales and also by its entrepreneurial thinking. In the area of energy-related services, in particular, selective company acquisitions will complement existing expertise and round off the range of products and services offered (p. 64 ff.).

Engine room of the Energiewende: Safety, simplicity and flexibility are crucial when it comes to operating system-relevant infrastructure. EnBW relies on operational excellence and a strict focus on efficiency and cost-orientation to achieve defined standards and levels of quality. Partnerships formed in the area of technological development serve to minimise costs and risks. In addition, EnBW offers comprehensive active cooperation opportunities at all value added stages. In the "Engine room of the Energiewende", EnBW uses its expertise to guarantee a reliable supply of energy – which also needs to be ensured during the transformation of the energy landscape.

Portfolio strategy

Repositioning the business portfolio

EnBW aims to more than double the share of its generation capacity accounted for by renewable energies from 19% (based on the reference year of 2012) to more than 40% in 2020. The capacities of our onshore wind farms will be increased significantly in Germany and selected foreign markets. Offshore wind power represents a further opportunity for growth. By investing extensively in grid expansion, we will be making a substantial contribution to the infrastructure required by the energy system and thus to the security of supply.

Innovative products and services will form another important pillar of the company's business. By 2020, a significant share of our earnings – the target value for adjusted EBITDA is between €2.3 and €2.5 billion – is to be generated through strategic initiatives. At the same time, the overall share of adjusted EBITDA accounted for by the regulated grid business and renewable energies will increase from around 40% (based on the reference year of 2012) to at least 70% in 2020. This will improve the risk-return profile of EnBW.

Extensive investments and divestitures

EnBW intends to invest €14.1 billion in total by 2020 (based on the reference year of 2012). In this context, the focus will be placed on expanding renewable energies on an industrial scale. Moreover, we will also concentrate on the expansion and upgrading of our transmission and distribution grids right through to so-called smart grids (Glossary, p. 154). In order to obtain the financial headroom required for such extensive investments, we have significantly extended our divestiture programme – involving divestitures, cash inflow from participation models, the disposal of assets and subsidies – with our EnBW 2020 strategy to around €5.1 billion (based on the reference year of 2012). Investment of €11.5 billion (around 80% of the target) had already been made and divestitures of €4.4 billion (around 85% of the target) were already completed by the end of 2018. On the basis of our current plans, we expect to exceed the targets for both strategic investment and divestitures by 2020. You can find further information on this subject in the "Forecast" on p. 110.

Investments and divestitures as part of the transformation of the portfolio
in € billion

EnBW 2020 strategy is on the home straight

As an integrated energy supply company, EnBW is rigorously and confidently implementing its 2020 strategy. It is clear as the end of the strategy period approaches that the improvements in efficiency and the growth initiatives designed to place the company on new foundations ready for the future have largely been implemented or are on the home straight. As a result of the full consolidation of VNG in 2017, EnBW has become the number 2 in the gas transport sector and the third largest German gas supplier. Another good example of the success of the repositioning of the portfolio is the area of wind energy. In the offshore wind sector, two further major projects EnBW Hohe See and EnBW Albatros in the North Sea are following on from EnBW Baltic 1 and EnBW Baltic 2. Another offshore wind farm – EnBW He Dreiht – is at the planning stage. EnBW He Dreiht is the first offshore wind farm project that does not require EEG subsidies. In the onshore sector, EnBW has now become one of the top project developers and operators of wind farms in Germany. EnBW gave another indication of its aim to tap into selected international growth markets in the area of renewable energies in 2018 with its entry onto the Swedish market and initial activities in France, Taiwan and the USA. If there is no new and unexpected massive deterioration in the general conditions, EnBW will achieve its earnings targets for 2020 at both a Group and also segment level and thus reach one of the most important milestones in the history of the company.

Strategic development post 2020

Next phase of the Energiewende

The first phase of the Energiewende in Germany was mainly driven by energy policy and regulation. A second phase of the Energiewende is now rapidly starting to take shape, the full impact of which will be seen in the period after 2020 as the market, customers and technology lead the way. There are six key trends that are most relevant to the further development of the EnBW strategy:

- The goal of decarbonising the economy, which is shared by almost all countries in the world, is setting the political and regulatory agenda.
- New competitors and technological advances are fundamentally changing the value added chain – every business is increasingly dependent on its own success factors.
- Renewable energies and smart grids continue to be the focus of future decentralised energy systems.
- The cross-sector networking of electricity generation and digitalisation are shaping industrial development. As a result, energy and infrastructure themes are converging across sector boundaries.
- The demand for smart and reliable infrastructure is increasing due to factors such as demographic trends and urbanisation. The infrastructure market in Germany will grow from a volume of €100 billion in 2015 to an anticipated €150 billion in 2025 (source: PwC/Oxford Economics, own calculations).
- Individualisation, digitalisation and networking are massively changing customer behaviour and making it more difficult to predict.

Sustainable and innovative infrastructure partner

The further development of the EnBW strategy post 2020 will focus on the key trends defining the second phase of the Energiewende. We want to increasingly place the strategic focus of our company on the aspect of infrastructure within our existing business fields and also use the core expertise of EnBW to exploit new growth opportunities above and beyond the energy sector. The core expertise of EnBW – what we do well and do better than many others – lies in the safe and reliable operation and management of critical infrastructures in the energy sector. This distinctive expertise can be transferred to other infrastructure sectors – the first themes have already been identified and work is in progress – for example in the broadband business (Glossary, p. 152), district development in cities (Glossary, p. 153) or the expansion of charging infrastructure (Glossary, p. 153) as the basis for electromobility. The aim is to develop a balanced business portfolio that has diverse potential for growth, a high proportion of stable regulated business and an attractive risk return profile.

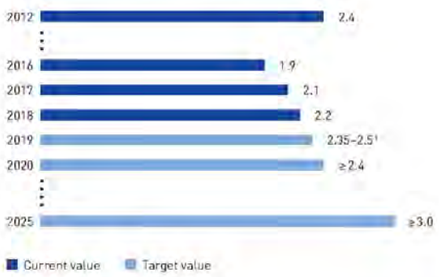
EnBW is transforming itself into a sustainable and innovative infrastructure partner with an emphasis on three central themes:

- Sustainable generation infrastructure will be achieved through the further expansion of low-carbon electricity generation, the phasing out of nuclear energy and the intended phasing out of coal-based conventional generation (decarbonisation).
- System critical infrastructure comprises the expansion and operation of the transmission grids and the upgrading of distribution grids, as well as grid-related services provided by our grid subsidiaries.
- Smart infrastructure for customers involves us developing new, digital business models and launching them onto the market where we will then scale them up.

EnBW is focussing on growth and innovation for the markets of the future. An integral part and driver of this corporate economic development is the digital transformation of EnBW. Digitalisation permeates into all business areas, opening up new growth opportunities and earnings potential.

From repositioning to growth

Development of adjusted EBITDA
in € billion



1) Based on the 2019 forecast.

EnBW will generate – if our forecasts are fulfilled – an adjusted EBITDA of around €2.4 billion in 2020 and once again achieve the same level of earnings as in 2012, although based on a drastically changed business portfolio. From 2020, EnBW will switch from a phase of "repositioning" to a phase of "growth" with the aims of asserting its competitive position, offering our employees an attractive place to work with good prospects and achieving dividends for our shareholders that are in line with the market. The further development of the EnBW strategy post 2020 will provide the necessary foundations.

An important driver of growth is the expansion of generation from renewable energies. As well as doubling installed output from onshore and offshore wind power to over 3.5 GW, a third pillar will be formed by the development of a portfolio of large photovoltaic projects. Photovoltaics is the fastest growing generation technology worldwide due to its cost benefits. EnBW is aiming to become the pioneer in Germany for open-field photovoltaic power plants without state funding. In order to further safeguard its growth ambitions, EnBW is following a strategy of selective internationalisation in the area of renewable energies. The aim is a dual diversification of risk – in terms of generation types and regional markets – and to exploit scaling effects. At the same time, EnBW is focussing on a sharp expansion of transmission grids, profitable growth of the distribution grids and the further development of sales into a customer infrastructure business, for example in the area of electromobility.

The expansion of the sustainable generation and utilisation of energy will be supported by innovative financing instruments. In October 2018, EnBW successfully issued its first green bond (Glossary, p. 153) with a volume of €500 million. The proceeds will be exclusively used to fund climate-friendly projects (p. 85 f.).

EnBW has set itself the target of increasing the adjusted EBITDA for the Group to at least €3 billion by 2025. Even in the growth phase post 2020, EnBW will maintain its financial discipline and intends to control its credit standing using the debt repayment potential (ratio of the retained cash flow to net debt). A target value of at least 16% should safeguard the good credit standing of EnBW and enable the implementation of the investment programme to achieve the goals in 2025 at the same time.

Goals and performance management system

We will safeguard the implementation of our 2020 strategy by means of a holistic goal and performance management system. This system reflects the overall performance of the company and strengthens integrated thinking within EnBW. At the same time, it underpins the comprehensive and transparent focus on performance and stakeholders within our company.

Performance management system

Since 2013, corporate management has been continually expanded through the addition of non-financial and strategic goals, so that it encompasses the dimensions of strategy, customers and society, employees and environment. The centrepiece of this integrated corporate management is the performance management system (PMS). As of 2015, the PMS incorporates all tools used in strategic and operational management. The financial and non-financial Group goals have been broken down into target agreements at all management levels since 2015, insofar as they are considered a sensible performance indicator for the relevant area. The quarterly performance reviews conducted at a Board of Management level introduced in 2013 were revised in 2015 and have since included operating performance indicators that will promote the achievement of targets for the financial and non-financial key performance indicators. In 2016, this concept was fully implemented. In terms of external communication, the PMS feeds into the integrated reporting of the financial and non-financial performance of EnBW based on the reporting framework of the International Integrated Reporting Council (IIRC). This Integrated Annual Report 2018 of EnBW incorporates the financial and non-financial aspects of our business activities.

Definition and target values for the key performance indicators

The key performance indicators enable us to measure the degree to which goals are achieved and to manage our company. The key performance indicators are the same as in the previous year.

The financial and strategic key performance indicators within the PMS are the adjusted EBITDA, the shares of the adjusted EBITDA accounted for by the segments, the internal financing capability and ROCE.

The **adjusted EBITDA** is the earnings before the investment and financial results, income taxes and amortisation and adjusted for non-operating effects. Adjusted EBITDA is a key performance indicator for the finance goal dimension, and the key performance indicators for the strategy goal dimension, which describe the shares of adjusted EBITDA accounted for by the segments, are derived directly from it (p. 82 and 111). The key performance indicator **internal financing capability** describes the adjusted retained cash flow in relation to the cash-relevant net investment and is the most significant performance indicator for the Group's ability to finance its activities internally (p. 89 and 112). After covering ongoing costs and dividend payments, the adjusted retained cash flow is available to the company for net investment without the need to raise additional debt. Since the 2017 financial year, we have adjusted the retained cash flow to take account of the extraordinary effect of the reimbursement of the nuclear fuel rod tax (Glossary, p. 154) (adjusted retained cash flow). The retained cash flow was reduced by the amount reimbursed to EnBW of €1,520.8 million in 2017. In the 2018 financial year, the reimbursement was used for a debt repayment of around €835.8 million and also for strategic investments of €200.0 million. We plan to distribute the remaining amount on a straight line basis in the period 2019 to 2020, also for the purpose of strategic investment. Accordingly, this will lead to an increase in the adjusted retained cash flow over the period 2018 to 2020. **ROCE** (return on capital employed) is the ratio of adjusted EBIT including the adjusted investment result to the average capital employed and forms the basis for determining the value added, reflecting the development of the company's value from a financial point of view (p. 92 f. and 112).

In addition to the financial key performance indicators, the PMS also includes non-financial key performance indicators.

The customers and society goal dimension comprises the Reputation Index, the Customer Satisfaction Index and the SAIDI (System Average Interruption Duration Index)). In order to calculate the **Reputation Index**, a total of around 5,000 people – from the stakeholder groups relevant for the EnBW brand of customers, the wider public, industrial companies, opinion leaders and investors – are asked about their impressions of the EnBW brand by an external market research institute.

Financial and non-financial key performance indicators and targets

Goal dimension	Goal	Key performance indicator	2018	Target in 2020	
Finance	Secure profitability	Adjusted EBITDA in € billion	2.2	2.3–2.5	The operating result is to return to the average level achieved before the Energiewende. The total regulated business (Grids and Renewable Energies segments) together contributes around 70% to this result.
	High level of financial discipline	Internal financing capability in %	93.2	≥100	The level of net financial debt is controlled by limiting net investment to the level of adjusted retained cash flow. The Group can thus finance its own repositioning internally.
	Increasing Group value	ROCE in %	6.5	8.5–11	Return on capital employed (ROCE) is higher than the cost of capital. EnBW is creating value for its stakeholders.
	Finance and strategy goal dimension, page 80 ff. | Expected trends, page 110 ff. | Report on opportunities and risks, page 114 ff.				
Strategy[1]	Share of result accounted for by "Customer proximity"/Sales	Share of overall adjusted EBITDA in € billion/in %	0.3/12.5	0.4/15.0	The operating result for the Sales segment doubles from €0.2 billion (reference year: 2012) to €0.4 billion in 2020 and represents around 15% of the Group operating result. Innovations make this possible.
	Share of result accounted for by Grids	Share of overall adjusted EBITDA in € billion/in %	1.2/54.5	1.0/40.0	The operating result for the Grids segment increases by 25% from €0.8 billion (reference year: 2012) to €1.0 billion in 2020 and represents around 40% of the Group operating result. The share accounted for by stable regulated business is expanding.
	Share of result accounted for by Renewable Energies	Share of overall adjusted EBITDA in € billion/in %	0.3/13.8	0.7/30.0	The operating result for the Renewable Energies segment increases by 250% from €0.2 billion (reference year: 2012) to €0.7 billion in 2020 and represents around 30% of the Group operating result. EnBW becomes more sustainable.
	Share of result accounted for by Generation and Trading	Share of overall adjusted EBITDA in € billion/in %	0.4/19.9	0.3/15.0	The operating result for the Generation and Trading segment falls by 80% from €1.2 billion (reference year: 2012) to €0.3 billion in 2020 due to changed framework conditions and only represents around 15% of the Group operating result.
	Finance and strategy goal dimension, page 82 ff. | Expected trends, page 111 | Report on opportunities and risks, page 114 ff.				

Goal dimension	Goal	Key performance indicator	2018	Target in 2020	
Customers and society	Reputation	Reputation index	51.3	55.4	In parallel with repositioning its business model, EnBW aims to continuously improve its reputation.
	Customer proximity	EnBW/Yello Customer Satisfaction Index	120/152	>136/ >159	EnBW and Yello customers are satisfied customers with a high level of customer loyalty. EnBW and Yello are organisations strongly oriented towards customers and meet the needs and wishes of their customers through tailored solutions and products.
	Supply reliability	SAIDI (electricity) in min./year	17	<25	Maintaining the quality of supply to its customers is of central importance to EnBW in the further development of the grids of its grid subsidiaries. The high degree of supply reliability in the grid area operated by EnBW is based on comprehensive investment in grids and plants and our abundant system expertise.
	Customers and society goal dimension, page 94 ff. | Expected trends, page 112 | Report on opportunities and risks, page 114 ff.				
Employees	Employee commitment	Employee Commitment Index (ECI)[2]	62	65	The commitment of our employees to EnBW is very strong and there is faith in the future viability of the company.
	Occupational safety	LTIF[3]	2.3	≤ previous year	The number of accidents at work and the resulting days of absence remains stable or is falling.
	Employees goal dimension, page 96 ff. | Expected trends, page 113 | Report on opportunities and risks, page 114 ff.				
Environment	Expand renewable energies (RE)	Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	3.7/27.9	5.0/>40	The share of the generation capacity accounted for by renewable energies has doubled compared with 2012. Onshore and offshore wind power and hydropower are at the forefront of this development.
	Climate protection	CO_2 intensity in g/kWh	553	-15% to -20%	EnBW actively contributes to climate protection by successively reducing the CO_2 intensity of its own generation of electricity (excluding nuclear power) by 15% to 20% by 2020 compared to 606 g/kWh in the reference year 2015.
	Environment goal dimension, page 101 ff. | Expected trends, page 113 | Report on opportunities and risks, page 114 ff.				

1 Other/Consolidation accounts for €-0.02 billion/-0.7% of the overall adjusted EBITDA.
2 Variations in the group of consolidated companies (consideration of companies controlled by the Group (without ITOs)).
3 Variations in the group of consolidated companies (consideration of all employees at those companies controlled by the Group, except external agency workers and contractors.

Results were collected for each stakeholder group about the distinctiveness of the brand and the assessment of the competence of and emotional attitude towards the EnBW brand. These are merged together to form a Reputation Index. The individual reputation indices for each stakeholder group are weighted equally to form a consolidated and reported Reputation Index (p. 94 and 112). The key performance indicator **Customer Satisfaction Index** comprises an integrated analysis of the average satisfaction of private end consumers of electricity over the year, which is directly linked to customer loyalty. It is compiled from customer surveys carried out by an external provider (p. 94 f. and 112). This key indicator is compiled for the two brands of EnBW and Yello. **SAIDI** serves as the key performance indicator of supply reliability. It expresses the average length of supply interruption in the electricity distribution grid experienced annually by each connected customer. SAIDI includes all unscheduled interruptions to supply that last more than three minutes for the end consumer. The definition and calculation of this performance indicator is based on the guidelines issued by the Network Technology/Network Operation Forum (FNN) of the VDE (German Association for Electrical, Electronic & Information Technologies) (p. 96 and 112).

The Employee Commitment Index (ECI) and LTIF (Lost Time Injury Frequency) are utilised as performance indicators in the employees goal dimension. The **ECI** expresses the degree to which employees identify with EnBW. It is compiled using employee surveys and is based on standardised questions that address the degree to which employees identify with their company, including satisfaction with their employer-employee relationship, attractiveness of the employer, identification with the company, motivational climate, competitiveness and future viability. The ECI is compiled every two to three years for those companies controlled by the Group (except ITOs) (Glossary, p. 154) as part of a full employee survey. Representative random sample surveys are completed in the periods between the full surveys – as was also the case in 2018 (p. 96 and 113). **LTIF** is calculated on the basis of LTI (Lost Time Injuries) which denotes the number of accidents during working hours which have occurred exclusively because of a work assignment from the company and result in at least one day of absence. LTIF indicates how many LTI occurred per one million working hours performed. This key indicator takes all employees at those companies controlled by the Group into account, except external agency workers and contractors (p. 100 f. and 113).

The key performance indicators in the environment goal dimension are the **installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE** and **CO_2 intensity** (Glossary, p. 152). The first are measures of the expansion of renewable energies and refer to the installed output of the power plants and not to their weather-dependent contribution to electricity generation (p. 102 and 113). The emissions of CO_2 from own generation of electricity for the Group, as well as the volume of electricity generated by the Group without the contribution made by the nuclear power plants, form the basis for the calculation of the key performance indicator CO_2 intensity. This performance indicator is calculated as the ratio between the emissions and the generated volume of electricity and thus specifically describes the amount of CO_2 released per kilowatt hour. By discounting the electricity generated by nuclear power plants, the performance indicator will not be influenced by the phasing out of nuclear energy in the coming years (p. 103 and 113).

Interdependencies between the key performance indicators

We are convinced that in order to give a comprehensive portrayal of the company, it is not only necessary to describe the economic, ecological and social context but also to illustrate and provide an analysis of interdependencies in this report. Linking together the various goal dimensions is an important

element of integrated reporting. At the same time, this type of reporting encourages a holistic corporate management approach within EnBW. In order to illustrate these interdependencies, the key performance indicators for the goal and performance management system are used. The basic assumption for illustrating interdependencies is that a change in one key performance indicator can also lead, in many cases, to changes in one or more other key performance indicators. Reciprocal relationships thus exist between the key performance indicators – in the most extreme case, all of the key performance indicators can even influence each other. In this context, the investment guidelines have been adapted in the 2018 financial year: Non-financial aspects such as environmental and climate protection goals will be taken into account to a greater extent for investment projects (p. 88).

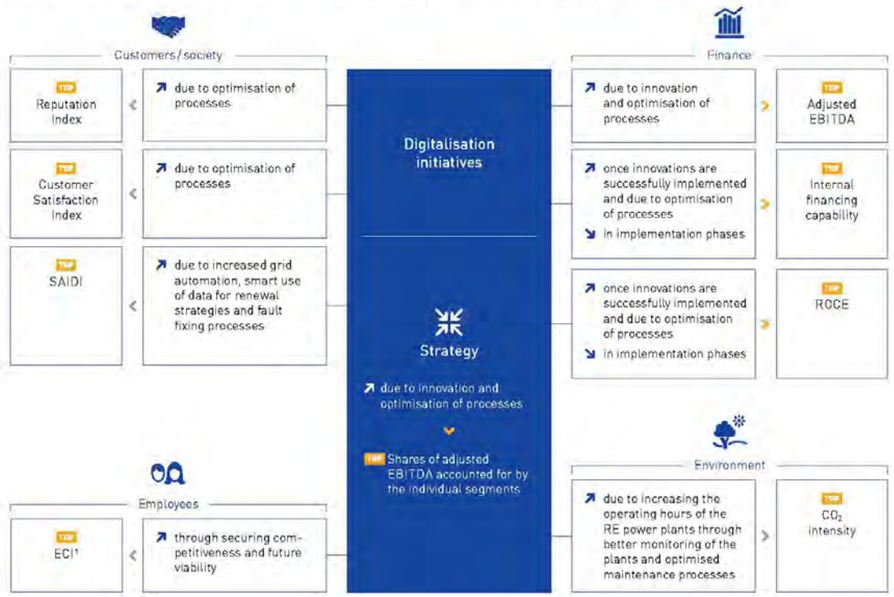
We have illustrated these interdependencies since 2015 using concrete examples that were important for the company in the past financial year or will be in the future and can thus also be found in other sections of the report. As part of an internal coordination process, various examples were examined by several specialist areas and selected based on the respective feedback.

In order to illustrate the interdependencies in 2018, we have selected two areas in which EnBW was already engaged in the past financial year but which will become even more important in the future. The **expansion of the HVDC connections as part of the SuedLink and ULTRANET projects** will accompany us over the next few years. New, powerful transmission grids will form the backbone of the Energiewende, especially for transporting energy that has been sustainably generated in northern Germany to the main consumption areas in southern Germany (p. 62). We anticipate that there will be a direct or potential influence on many key performance indicators. **Digitalisation initiatives** are another example. EnBW is focussing on three main areas in its digital transformation: products and processes, technologies, and people and organisations (p. 39). Due to the diverse range of impending changes, we anticipate that there will be a direct or potential influence on many key performance indicators.

The key performance indicators that are directly influenced are positioned in the centre of the diagram and should essentially be directly measurable. The interdependencies between the financial and strategy key performance indicators are also essentially directly measurable and are represented in the example diagrams by orange arrows. The interdependencies with the other non-financial key performance indicators are difficult to measure and generally tend to be potential or long term in nature. They are represented by grey arrows. In the 2018 financial year, these interdependencies were not measured individually. They are presented based on internal discussions with the relevant specialist areas and those responsible for the performance indicators. The upward pointing arrows show a positive influence on the key performance indicator, while the downward pointing arrows show a negative influence.

Interdependencies between key performance indicators using the construction of HVDC connections as an example

Interdependencies between key performance indicators using digitalisation initiatives as an example



1 We also anticipate a potential negative influence on the Employee Commitment Index due to the digital transformation in the Group. However, this type of risk will be compensated for by integrating employees into the change process.

Corporate governance

Corporate management

Good corporate governance is an essential part of the corporate culture at EnBW. We are convinced that responsible and transparent corporate governance strengthens the trust and confidence that customers, capital providers, employees and the general public place in the company, thereby contributing to its long-term success. The Board of Management and Supervisory Board have the responsibility of managing and supervising the company above and beyond merely fulfilling statutory requirements, but to do it in accordance with recognised benchmarks for good corporate governance and in harmony with the principles of a social market economy, guaranteeing the continued existence of the company and ensuring a sustainable increase in its added value. Therefore, EnBW also meets all the recommendations of the German Corporate Governance Code [www.enbw.com/corporate-governance].

As in previous years, Dr. Bernhard Beck, the member of the Board of Management responsible for corporate governance, monitored conformity with the Code at EnBW and reported extensively to the Board of Management and Supervisory Board on all current themes pertaining to corporate governance. Both boards acknowledged his report and addressed the recommendations and suggestions in the Code. They subsequently approved the company's annual declaration of compliance pursuant to section 161 German Stock Corporations Act (AktG) on 5 December 2018. The current declaration of compliance and the declarations from previous years are published at www.enbw.com/declaration-of-compliance.

The remuneration report is contained in the management report on p. 124 ff. of this report.

Management and supervision

Board of Management

The Board of Management is jointly responsible for managing Group business. In addition to the role of CEO, the tasks performed by the Board of Management are split into the remits of "finance", "personnel, law and compliance, auditing" and "technology". As of 31 December 2018, the Board of Management of EnBW AG consisted of four members. Colette Rückert-Hennen joined the Board of Management as the replacement for Dr. Bernhard Beck on 1 March 2019 and took over responsibility for the areas of personnel, executive management and health management. Dr. Bernhard Beck will remain in office until 30 June 2019 and will still be responsible for the other areas under his remit in the allocation of responsibilities up until this date.

Allocation of responsibilities at Board of Management level (as of 31/12/2018)

Dr. Frank Mastiaux CEO	Thomas Kusterer Finance	Dr. Bernhard Beck Personnel, law and compliance, auditing	Dr. Hans-Josef Zimmer Technology
› Corporate development/ sustainability › Strategy/energy industry › Communication/policy › Transformation/ IT/procurement/ infrastructure › Innovation management › Sales, marketing and operations › Gas value chain › Escalation risk management and trading	› Accounting › Tax › Controlling › Finance › Investor Relations › Mergers and acquisitions › Risk management/ICS › Trade	› Personnel and executive management › Law › Auditing › Compliance management/ data protection › Regulatory management › Boards/shareholder relationships › Equity investment management › Health management	› Generation (renewable, conventional, nuclear) › Waste management/ environmental services › Electricity and gas transmission grids › Distribution grids (electricity and gas) › Grid technology › Research and development › Occupational safety/ environmental protection/ crisis management

www.enbw.com/board-of-management

Supervisory Board

The Supervisory Board of EnBW AG consists of 20 members in accordance with section 8 (1) of the Articles of Association. In accordance with the German Co-determination Act (MitbestG), an equal number of members represent shareholders and employees. Three employee representatives are nominated by the ver.di trade union. The Supervisory Board appoints the members of the Board of Management and advises them on their management of the company. It discusses business performance, planning and strategy of the company together with the Board of Management at regular intervals and ratifies the annual financial statements. The Supervisory Board is always involved in decisions of fundamental importance to the company. Legal transactions and measures subject to the approval of the Supervisory Board are defined in its rules of procedure. In order for the Supervisory Board to optimally perform its functions, it has formed the following standing committees: a personnel committee, a finance and investment committee, an audit committee, a nomination committee and a mediation committee in accordance with section 27 (3) MitbestG, a digitalisation committee and an ad-hoc committee.

Further information on the Board of Management and Supervisory Board can be found in this report under the section on "Corporate bodies" (p. 145 ff.) as well as in the Declaration of Corporate Management 2018 of the EnBW Group and EnBW AG including the Corporate Governance Report 2018 and the Report of the Supervisory Board (www.enbw.com/corporate-governance).

Annual General Meeting

Shareholders exercise their rights with regard to company matters at the Annual General Meeting. The Annual General Meeting passes resolutions on the discharge of Board of Management and Supervisory Board members, the appropriation of earnings and selection of the auditor. Resolutions of the Annual General Meeting only require a simple majority of votes in most cases. Each bearer share is equivalent to one vote. Further information on the Annual General Meeting is available at http://hv.enbw.com.

Shares of EnBW AG are listed on the General Standard segment of the Frankfurt Stock Exchange. A stake of 46.75% of the share capital in EnBW AG is owned by each of both the Federal State of Baden-Württemberg – via its wholly owned subsidiary NECKARPRI GmbH and, in turn, via its wholly owned subsidiary NECKARPRI-Beteiligungsgesellschaft mbH – and by Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) via its wholly owned subsidiary OEW Energie-Beteiligungs GmbH.

Overall, the shareholder structure is unchanged as of 31 December 2018 when compared to the previous year.

Shareholders of EnBW

Shares in %[1]	
OEW Energie-Beteiligungs GmbH	46.75
NECKARPRI-Beteiligungsgesellschaft mbH	46.75
Badische Energieaktionärs-Vereinigung	2.45
Gemeindeelektrizitätsverband Schwarzwald-Donau	0.97
Neckar-Elektrizitätsverband	0.63
EnBW Energie Baden-Württemberg AG	2.08
Other shareholders	0.39

1 The figures do not add up to 100% due to rounding differences.

Compliance

Compliance management systems

Natural compliance with the relevant legal regulations and internal company rules forms the basis for the business activities of EnBW and is part of our corporate culture. The compliance management systems (CMS) and functions of EnBW are individually designed. They are based on company and sector-specific priorities and risks, the size of the company and other factors. They are designed to support each company – and thus the whole Group – in avoiding risks, liability claims and damage to reputation.

Depending on the type of corporate control over a company, the compliance-relevant companies with employees are either directly or indirectly integrated into the compliance management system of EnBW.

The CMS at EnBW is continuously examined and updated internally as part of the audit or by the compliance organisation itself. It covers the directly controlled companies. The CMS focuses on the prevention, detection and sanctioning of corruption, the prevention of violations against competition and antitrust laws, the prevention of money laundering and data protection – which falls within the scope of compliance at EnBW. In the reporting year, there were 27 companies directly integrated into the CMS at EnBW. New companies are integrated into the CMS using a risk-based approach.

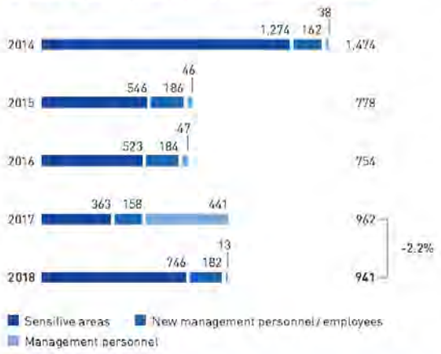
Companies indirectly integrated into the CMS of EnBW have their own CMS. Relevant participating interests held by these companies are also integrated into their CMS. Three companies in the ED Group were integrated into the CMS for Energiedienst Holding (ED), while two subsidiaries have independent control over compliance. Seven companies with employees were integrated into the CMS at Pražská energetika (PRE), three at Stadtwerke Düsseldorf (SWD) and 18 at the VNG Group.

In order to safeguard the commercial success of the company against compliance risks – especially to fight corruption and bribery – preventative risk assessment methods, advisory services and training concepts have been set up at EnBW, the compliance-relevant companies and the ITOs (Independent Transmission Operator) [Glossary, p. 154].

Activities this year

At the **compliance training courses** in 2018, there was a special focus in the face-to-face training sessions on purchasing and construction coordination with respect to the CMS at EnBW. In addition, a number of antitrust training events were held for sensitive areas of the company. The completion of an e-learning course or participation in face-to-face introductory training courses is obligatory for new EnBW employees.

Number of participants in compliance training events[1]



1 At EnBW AG and directly integrated companies

EnBW holds a **compliance day** every year. The event was held on 22 October 2018 in Karlsruhe and provided the around 115 participants with a varied programme that covered themes such as data compliance and the risks posed by cyber attacks and how to avoid them.

Extensive Group regulations can pose a challenge to young, innovative companies that are active in highly competitive and volatile markets. Therefore, the compliance and data protection department and the EnBW Innovation Campus developed a set of **Basic Rules** together in 2018. These rules describe the minimum requirements for innovation projects, micro business units and start-ups. This streamlined set of rules is designed to help those responsible in the Innovation Campus guarantee compliance. The core principles followed when defining the Basic Rules were, amongst other things: guaranteeing competitiveness by using a risk management approach, passing on greater responsibility to managers, protecting the interests of EnBW and a focus on short and concise rules (p. 67).

All of the indirectly integrated companies held training courses to increase awareness amongst employees. The companies were able to choose whether to use either **face-to-face or online training courses**.

The annual **compliance risk assessments** at EnBW investigate the corruption, antitrust, fraud and data protection risks and form the basis for the compliance and data protection programme, as well as for decentralised preventative activities. In 2018, they were carried out at those companies directly integrated into the CMS. The in-depth approach for assessing and raising awareness for risks using face-to-face training events for sensitive areas was followed again in 2018 and will be continued in 2019. The summary of the material compliance risks is contained in the "Report on opportunities and risks" (p. 118 and 121). Risks are also systematically identified in the indirectly integrated companies and the ITOs.

The **advisory services** offered by the EnBW compliance department, which form another key element of prevention, were also utilised in 2018 to the same high degree as in previous years. The compliance hotline, which is reachable by e-mail or telephone and deals with matters on a personal level, received around 1,000 enquiries relating to the key issues of gifts, donations and sponsoring, as well as to further topics such as conflicts of interest and the auditing of business partners. The advisory services dealing with compliance themes have also grown at the indirectly integrated companies.

Compliance breaches

EnBW and the directly integrated companies have established reporting channels via which internal, and in isolated cases also external, whistle blowers can report suspected cases. Whistleblowers always have a right to the confidential and prompt handling of any suspected cases they report and can always contact the relevant compliance department or external bodies under the guarantee of complete anonymity with respect to the company (at EnBW, ED, PRE, SWD and TransnetBW). In the reporting year, there were ten compliance breaches, one of which was material. There was no evidence for cases of corruption.

There was one compliance breach at terranets bw in the reporting year, while two suspected cases at VNG proved to be wellfounded. There were also four compliance breaches at PRE.

The EnBW Group faced neither antitrust law penalty procedures nor third-party antitrust lawsuits in the 2018 financial year. Law enforcement agency investigations of individual employees and former members of corporate bodies relating to the so-called Russian business deals and the so-called sales tax carousel in CO_2 allowance (Glossary, p. 152) trading were also ongoing in 2018. It is not possible to say at the present time when these proceedings will end.

Data protection

An important theme in 2018 was the EU General Data Protection Regulation (GDPR) that came into force on 25 May. Any adjustments that were necessary as a consequence were identified and subsequently implemented as part of a project led by the compliance and data protection department that also included representatives from all different functions and departments. In the project, working groups networked throughout the Group were established, for example, to examine themes related to the GDPR and define and establish conceptual standards.

A newly introduced and obligatory e-learning course and numerous face-to-face events in particularly affected areas ensure that there is sufficient awareness for the subject of data protection within the Group. Furthermore, the advancing digitalisation of both internal processes and sales projects means that the requirements stipulated by data protection law must be dealt with intensively. The compliance and data protection department provides the specialist departments with advice and support in this context. Especially after the rights of the data subject were strengthened in the GDPR, there were a large number of requests for information in 2018.

In dialogue with our stakeholders

Our stakeholders

Continuous and systematic dialogue with our internal and external stakeholders is an important element for determining key issues as part of our business activities. The most important stakeholder groups include shareholders and the capital market, employees, customers, local authorities and municipal utilities, society and environment, suppliers, business partners, the political community and the media. A fundamental aspect of our dialogue with stakeholders is the identification and prioritisation of stakeholder groups relevant to strategically significant and current issues, particularly with regards to the Energiewende.

This dialogue is conducted using a variety of communication channels ranging from conferences to social media platforms. In direct dialogue with our stakeholders, we listen to their interests and their expectations of EnBW and take these into account in the strategic positioning of our company and in our business decisions. At the same time, we inform all important stakeholders about the company's needs and the prerequisites for providing an efficient, reliable and sustainable supply of energy. As part of this dialogue, it is also important for us to listen to critical opinions such as those expressed at events held by our Energy & Climate Protection Foundation. In this context, the phasing out of coal power and brown coal extraction in Germany were, for example, the focus of heated debate in blog posts and at events in 2018. Mutual understanding, social acceptance and trust are increased further through this purposeful exchange of insights and perspectives. In addition, it also helps us to identify central developments and key topics at an early stage.

Materiality analysis

Based on the systematic materiality analysis that was carried out for the first time in 2013, EnBW has continuously expanded its processes over the last few years for identifying material topics and linking them simultaneously with the development of the company's strategy. Material aspects are determined via the framework provided by the International Integrated Reporting Council (IIRC), as well as in accordance with the GRI standards for sustainability reporting issued by the Global Reporting Initiative (GRI). Other current developments flow into the determination of future key issues, such as the work of the Task Force on Climate related Financial Disclosures (TCFD) (Glossary, p. 155) on climate-related risk reporting.

On the one hand, topics are considered material if they have a significant influence on long-term value added and thus the performance and future viability of EnBW. Contributions to the strategic orientation as a sustainable and innovative infrastructure partner are of particular importance in this context. On the other hand, aspects reflecting any important economic, environmental and social impacts the organisation may have and that significantly influence the perception of stakeholders are also taken into account.

Material themes are continuously implemented in the functional and business units, as well as in the individual companies of EnBW. In addition, the findings from the materiality analysis flow into, for example, the strategy process and stakeholder management.

The materiality analysis process was updated in the 2018 financial year. It comprises three steps: the creation of an overview of the themes relevant to strategy and communication, the development of a list of themes relevant from the perspective of sustainability and the derivation of material themes from the reputation analysis. During each step of the process, the themes identified were continuously compared to the key themes that were dealt with by the Supervisory Board in 2018. Every step leads to a distinct prioritisation of themes and ultimately to a final list of the top themes that can be allocated to the categories of transformation of the portfolio, growth and sustainability.

The **transformation of the portfolio** in the various segments is shaped by the following themes:

- **Sales segment**
  - **Smart products:** The storage of privately generated solar energy is becoming increasingly important. Our customers can benefit from our smart energy generation and storage solutions (p. 94 f.).
  - **Digitalisation:** The reorganisation of customer processes and the expansion of the digital product range continue to be a main focus for EnBW (p. 39 and p. 94 ff.).
  - **Electromobility:** EnBW is further expanding its product portfolio with individual solutions for private households and local authorities (p. 94 f.).
- **Grids segment**
  - **Expansion of the distribution grid:** The development of a smart distribution grid for the integration of renewable energies using innovative equipment is a key aspect for the success of the Energiewende for EnBW and its grid subsidiaries (p. 49 f.).
  - **Expansion of the transmission grid:** TransnetBW is constructing HVDC lines (Glossary, p. 153) for transporting electricity over long distances so that excess electricity that is already generated to some extent today in the north of Germany can be transported to the south (p. 55).

- **Renewable Energies segment**
  - **Offshore wind:** The rigorous expansion of offshore wind is being pushed forward through the construction of the EnBW Hohe See and EnBW Albatros wind farms. Wind generation at sea is an important component of the EnBW portfolio which comprises an increasing proportion of renewable energies (p. 49 f.).

- **Generation and Trading segment**
  - **Dismantling of nuclear power plants:** Significant progress has been made with the environmentally friendly dismantling of the nuclear power plants and construction of waste material processing centres in Philippsburg and Neckarwestheim (p. 45).

The following themes are material for the **growth** category:

- **Expansion of renewable energies:** Alongside offshore and onshore wind power, photovoltaics will be expanded to become another main pillar of the EnBW renewable energy business in Germany (p. 50).
- **Further internationalisation:** EnBW entered the Swedish market in 2018 and also carried out its initial activities in France, Taiwan and the USA. We want to expand renewable energies in these markets in the future (p. 43).
- **Supply reliability:** The supply quality will be guaranteed by the expansion of the transmission and distribution grids for electricity and gas by our grid subsidiaries as part of the Energiewende (p. 96).
- **Infrastructure provider:** EnBW is one of the largest infrastructure providers in the area of electromobility in Baden-Württemberg (p. 95). We aim to become a sustainable and innovative infrastructure partner and also exploit new opportunities for growth outside of the energy sector (p. 50).

At the same time, EnBW has revised its sustainability concept and integrated it into the corporate strategy. This will ensure that it is interlinked with the core business to an even greater extent. This process is oriented towards the **strategic principles with respect to sustainability**:

- **Sustainable economic development:** We endeavour to conduct all of our activities in a sustainable way, from the responsible procurement of raw materials (p. 70 f.) through to the provision of smart energy solutions for our customers (p. 94 f.). In addition, we are actively involved in the area of sustainable finance, which is exemplified by, amongst other things, the membership of the EnBW Chief Financial Officer, Thomas Kusterer, on the Technical Expert Group on Sustainable Finance (TEG) (Glossary, p. 155) that was newly founded in June 2018 and on the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, p. 155) (p. 73 and p. 86). As part of his work in the climate protection initiatives named above, he regularly reported to internal bodies on the climate-related opportunities and risks.
- **Climate and environmental protection:** EnBW advocates the introduction of a minimum price for CO_2. We make a contribution to climate protection by investing in climate-friendly projects and business models (p. 73 and 85 f.).
- **Commitment to our stakeholders and willingness to engage in dialogue:** We are actively integrating our stakeholders into the energy world of the future – by providing comprehensive information and opportunities for dialogue, such as the Energy & Climate Protection Foundation (p. 63).
- **Customer proximity:** In order to fulfil the needs of our customers to an even better extent, we develop innovative products such as in the area of electricity storage (p. 94 f.) or for the supply of biogas (p. 85).
- **Commitment to our employees:** We provide our employees with attractive offers, for example, in the areas of healthcare, pension provision and climate-friendly mobility (p. 96 ff.).
- **Regional roots:** Our roots lie in Baden-Württemberg and we recognise our special responsibility to this region – by investing in existing infrastructure (p. 87 f.) and also through our voluntary and charitable work (p. 61 f.).

Development of sustainability ratings

EnBW maintains close contacts with leading sustainability rating agencies and takes their analyses and evaluations of the corporate strategy, the company situation and its business prospects into account in its decision-making process. In the selection of agencies, the main focus is placed on, amongst other things, transparent and plausible evaluations and efficient working processes between the rating agencies, companies, investors and sustainability analysts. EnBW strives to continuously improve its ratings from recognised agencies in the area of sustainability. It thus aims to strengthen its position as a responsible and sustainable company and also wants to be seen as an attractive investment opportunity for financial investors whose investment decisions are based wholly or partially on sustainability criteria. In 2018, EnBW was able to solidify its leading position in terms of important sustainability ratings for the energy sector:

- In the **ISS-oekom** rating, EnBW has maintained its good rating of B- (on a twelve point rating scale from D- to A+). It thus achieved "Prime Status" and belongs to the leading group of supply companies evaluated by ISS-oekom (ranked 3rd out of 39 companies, as of October 2018). The agency evaluates the performance of the company based on social, governance and environmental aspects using more than 100 sector-specific criteria.
- In the **Sustainalytics** rating – which evaluates environmental, social and governance aspects – EnBW received a rating of 73 on a scale from 0 to 100. EnBW was thus classified as an "Outperformer" and holds a leading position in comparison to other companies in the supply sector.
- In the **Carbon Disclosure Project** (CDP) climate-protection rating, EnBW received the rating B/Management for its climate reporting in 2018, after the CDP had once again made the requirements more stringent. This rating means that EnBW continues to hold a leading position in the energy sector within the German-speaking DACH region. In 2018, more than 7,000 companies worldwide participated in the questionnaire issued by the CDP.

Further information on the sustainability ratings is available at www.enbw.com/sustainability. Further details on non-financial performance indicators are presented on p. 94 ff., while information on the financial ratings from the rating agencies Moody's, Standard & Poor's and Fitch can be found on p. 86 f.

Social engagement

EnBW is acutely aware of its responsibility towards society. Its commitment to addressing the concerns and interests of society focuses on the target groups of end customers, business partners and local authorities within its primary business sphere of influence in Baden-Württemberg. Support for superordinate social issues is concentrated on the **core areas** of popular sport, education, social issues, the environment, art and culture.

The Group guidelines on corporate sponsoring, memberships, donations and involvement with universities govern the goals, responsibilities, standards, principles and processes for all companies in which EnBW AG either holds a majority of the shares or voting rights. The **donations** made by EnBW are documented on a yearly basis in the donation report that is presented to the Board of Management. In 2018, the donations made by the EnBW Group came to €2.2 million, following €1.0 million in the previous year. Donations worth €604,000 (2017: €383,000) were attributable to EnBW AG. This increase at both a Group and AG level came primarily from the increase in support provided to the Group's own foundations. The EnBW Board of Management decided a number of years ago not to send Christmas gifts to business partners but instead to make charitable donations in Baden-Württemberg. As part of the **Christmas donations** in 2018, a total of €32,000 was given to eight charitable campaigns or campaigns initiated by readers of regional newspapers in Baden-Württemberg. The subsidiary Netze BW also made donations in 2018 to social causes run by charitable organisations in Baden-Württemberg.

In 2018, **Pražská energetika (PRE)** supported the Charta 77 Foundation – Barriers Account – and the Jedlička Institute, which provides apprenticeships and social services for physically handicapped young people. **Stadtwerke Düsseldorf (SWD)** has helped schools with the task of guiding young people towards a career for many years. In addition, it participates in interschool competitions such as the "Düsseldorf School Prize" for outstanding school projects focussing on social, health or cultural topics. SWD makes a Christmas donation to four charitable associations in Düsseldorf that are selected each year. **VNG** has supported the "Network of Warmth" since 2001, which promotes and funds charitable work in Germany. In addition, its subsidiary ONTRAS supports individual charitable projects from associations and initiatives via its "ONTRAS.Stadtbekannt" funding programme and participated in the "Foundation for volunteering and civic involvement in Mecklenburg-Vorpommern".

As part of the "We're making it happen" project (www.enbw.com/wir-machen-das-schon), EnBW also supported social or charitable projects with the **Making it happen bus** in 2018. Associations and charitable organisations could apply for assistance with their projects. The winners were each provided with support from the EnBW team of up to ten employees in the form of manpower, motivation and materials worth up to €5,000. A total of 17 projects have been successfully realised up to now. Further information on this subject can be found at www.enbw.com/machenbus.

EnBW regularly offers young artists space in its buildings for their **exhibitions**. "MaterialGestalten" (MaterialForms) was the third exhibition in the series called "Design now!" that could be seen in June and July 2018 in EnBW City. The "Insights into artist's workshops" (Atelierein blicke) exhibition featuring work from Marie Lienhard was promoted by EnBW from November 2018 to the end of February 2019.

EnBW provides manpower and financial support to the **Energy & Climate Protection Foundation**. The foundation holds numerous events dealing with questions about the energy industry, as well as on the themes of climate change and innovation. At the Urban Climate Talks on 14 June 2018, the focus was placed, for example, on the contribution that can be made by each individual person to climate protection. Other topics covered were storage technologies, the phasing out of coal power and financing the Energiewende (www.energie-klimaschutz.de).

At the beginning of 2018, occupational medicine and health management at EnBW held a second **donor recruitment campaign for the German Bone Marrow Donor Registry (DKMS)**. Some 600 employees registered for the campaign, after 1,000 employees had already registered for the first DKMS donor recruitment campaign in 2011. The DKMS works to identify possible stem cell donors so that people suffering from leukaemia can be given the chance of recovery.

The influx of refugees into Germany remains a major social, political and economic challenge. EnBW is engaged here on multiple levels: EnBW already developed a training concept for refugees in 2015 with the goal of providing sustainable support with an eye to the future for the people affected and their countries of origin. A multi-stage **career integration programme** has been run by EnBW in Karlsruhe and its subsidiary Netze BW in Stuttgart since 2016. Since the beginning of 2018, 150 participants have been introduced to technical careers in introductory days and work placements during the first stage. A total of 37 participants then took part in the second stage to obtain an introductory qualification from September 2018. In the third stage, 17 participants from last year's programme have been learning an IHK-certified technical profession in dual vocational training at EnBW or Netze BW since September 2018. EnBW is also supporting employees who are providing **assistance to refugees** on a voluntary basis. Numerous small aid projects are promoted that mainly focus on language training, sport and meaningful leisure activities. Around 45% of the donation pot established by EnBW for this purpose in December 2015 had been utilised by the end of 2018.

EnBW has participated in the employers' initiative **"Right to stay through work"** since January 2018. The aim of the initiative is to make a contribution to the success of integration through work. In addition, EnBW has been a member of the **"We stand together – German industry integration initiatives"** network since September 2018. The joint platform www.wir-zusammen.de gives examples of already successfully established projects, promotes transparency and offers guidance.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 118).

Dialogue with citizens

The **expansion of renewable energies** is an important goal that EnBW is pursuing with great commitment. We plan, construct and operate wind farms and photovoltaic power plants in direct partnership with or with the participation of local authorities and citizens. At various sites, we offer free tours for visitors and visitor groups throughout the year.

The **expansion of the grids** for the purpose of connecting up renewable energies is gaining more and more attention in the media and amongst the general public. At the very forefront of this work are the central infrastructure projects forming part of the Energiewende to expand the transmission grids with the two north-south connections SuedLink and ULTRANET by our subsidiary TransnetBW. In the SuedLink project, each stage is accompanied by public events in all six federal states and 36 districts affected by the plans. In addition, the WebGIS online planning tool provides an opportunity to submit ideas at any time for optimising the area covered by the grid connection. There are also extensive opportunities for citizens to participate in the planning and implementation of ULTRANET, both in advance of and during the public law proceedings.

The EnBW subsidiary Netze BW informed citizens about the grid expansion plans for the 110 kV high-voltage grid in numerous dialogue events in 2018. Citizens were also informed by EnBW in April about the expansion plans for the pump storage power plant in Forbach. A public information event was held in Marbach am Neckar in November about the special technical equipment for grids that EnBW plans to construct at its existing power plant site and which will form part of its bid for the invitation to tender issued by TransnetBW.

Alongside economic and technical aspects, the Energiewende and the associated phasing out of nuclear energy also encompass elements of social responsibility. EnBW unequivocally assumes responsibility for the safe **dismantling** of the nuclear power plants it operates. Dialogue with the local population includes, for example, the annual information days on the dismantling work – an established platform that EnBW used for the sixth time in 2018. Any interested citizens were invited to attend the events held at the sites in Philippsburg, Neckarwestheim and Obrigheim. In addition, those responsible for the dismantling work were available to answer questions at public meetings of the municipal councils, public hearings and information events. There was also dialogue with many citizens and functionaries who took part in the visitor tours at the nuclear power plants in 2018.

In dialogue with our stakeholders

Selected activities in dialogue with our stakeholders

Stakeholder	Opportunity for dialogue	Main themes	Further information
Shareholders/ capital market	Financial reports	Financial and non-financial performance of the company	www.enbw.com/financial-publications
	Annual General Meeting	Dialogue with shareholders	http://hv.enbw.com
	Telephone conferences/ discussions with analysts and investors	Corporate economic development, positioning on capital market	www.enbw.com/conferencecall www.enbw.com/investor-update
	Bankers' Day and Capital Market Day	Latest developments at EnBW and in the energy sector	www.enbw.com/bankersday www.enbw.com/capital-markets-day
	Green bond roadshow	Presentation of the EnBW Green Financing Framework and the projects selected for it	www.enbw.com/green-bond page 85 f.
Employees	EnBW aktuell	Two events providing current insights into the themes of digitalisation and the grids business	
	Strategy dialogue 2018	A total of 1,300 participants discuss the implementation of the 2025 strategy in workshops	page 96
	Leadership Forum 2018	Group-wide meeting for the management team and other employees in leadership positions with 700 colleagues	page 97
	Diversity campaigns	Participation of EnBW in Christopher Street Day in Stuttgart; careers information day "Girl power for the electricity grid" by Netze BW	www.csd-stuttgart.de page 97 f.
Customers	Trade fairs and congresses	For example: "Aktionstag Elektromobilität", "Strategiedialog Automobilwirtschaft", Hannover Messe and "Handelsblatt Jahrestagung Gas"	
	Platforms for dialogue and discussion with customers	For example: customer parliament, Energy Strategy Days or EnBW Property Developer Energy Day	
	Customer magazine, customer blog, social media channels, newsletter and local presence	Information on latest news, products, services and events	www.twitter.com/enbw www.facebook.com/enbw www.enbw.com/blog
Local authorities/ public utilities	Energy Day for local authorities	Presentation of products and innovations to around 1,000 representatives from cities and local authorities	www.enbw.com/kommunaler-energietag
	Energy Team Baden-Württemberg	Joint dialogue platform for municipal utilities, regional suppliers and EnBW	
Society/ environment	"Making it happen" bus campaign	EnBW employees support social and charitable projects	www.enbw.com/macherbus page 61
	"Energy on Tour"	New educational project on the energy supply of the future for high schools	www.enbw.com/energie-auf-tour
	Tours and open days	More than 30,000 visitors to EnBW info centres and events at power plants	www.enbw.com/besichtigungen
	Biodiversity: funding programme: "Stimuli for Diversity"	Eight protective measures for amphibians and reptiles will be supported in the 2018 funding year	www.enbw.com/biodiversitaet page 104
	Sustainability Week 2018	6th Sustainability Week by NaturEnergie+ on the theme of upcycling	www.naturenergieplus.de
Suppliers/ business partners	Dialogue on handling coal procurement responsibly	EnBW delegation visits governmental and non-governmental organisations in Colombia, discussions with NGOs in Russia	www.enbw.com/kohlebeschaffung page 71
	Urban Innovation – solutions for the city of tomorrow	Presentation of innovations from EnBW and its participating interests to external partners from business, politics and the start-up scene	www.urbaninnovation-event.de page 68
Politics/ media	Project to promote young talent	For example: "Energy Campus", "Green Innovation and Investment Forum" or "Energy Reporter"	www.energie-klimaschutz.de
	Discussion events on energy industry and climate protection topics	Urban Climate Talks 2018, five debate evenings, cooperation events: "Mobility in my city", "WELT" energy summit, etc.	www.energie-klimaschutz.de
	EnBW Energy and Business Club (EWC)	Events on the themes of sector coupling – the transport transition meets the distribution grid, electromobility and climate protection	
	Foundation 2°	EnBW becomes one of the sponsors of Foundation 2° – German Businesses for Climate Protection	www.stiftung2grad.de page 73
	Active and transparent communication via the media	Major articles in daily newspapers and magazines such as "Süddeutsche Zeitung", "Manager Magazin", WAZ; Events with "Tagesspiegel" or "Die Welt"	www.enbw.com www.twitter.com/enbw www.facebook.com/enbw

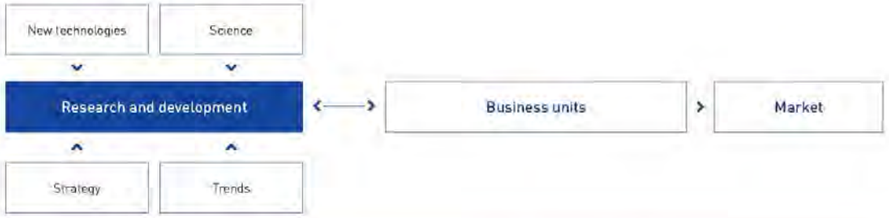
Research, development and innovation

Research and development: Goals, guidelines and processes

The goal of research and development at EnBW is to identify important trends and technological developments at an early stage and to develop new skills for future business activities in pilot and demonstration projects. For this purpose, research projects are carried out in collaboration with the operational units at EnBW or with customers – directly at the site of their subsequent application. They form a project portfolio that is centrally coordinated for all EnBW units. This ensures that successful research projects deliver innovations for EnBW. The research and development activities are integrated into an external and internal network of partners.

Research, development and innovation also leads in many cases to inventions and patents. The portfolio of patents grew by 25 patents (previous year: nine) in 2018; the EnBW Group held 208 patents (previous year: 183) at the end of the year. The patents held by EnBW focus mainly on the areas of generation and grids.

The research process at EnBW



Research and development: Key points and selected results

Research and development at EnBW focuses on renewable energies, green gases and storage systems for the smart digital energy world.

Renewable Energies

Wind energy: Offshore wind power plants with fixed foundations are limited to shallow waters. Floating platforms could be used to exploit the wind power potential in deeper waters. In cooperation with partners, EnBW is investigating various different concepts for **floating offshore wind farm projects** that would be suitable for opening up new international offshore wind energy regions. In the reporting year, negotiations about an investment in a Danish floating platform concept did not result in an agreement. Alternatives will now be investigated.

In addition, EnBW is a member of a consortium headed by the manufacturer Senvion that aims to design a **prototype for an offshore power plant with an output of more than 10 MW** and construct it as a pilot plant with funding from the EU. Larger wind turbines are a prerequisite for further reducing the cost of generating electricity in offshore wind farms. In expectation of these developments, bids were already submitted in the latest auctions that forgo funding via guaranteed feed-in remuneration. The competitiveness of offshore wind energy on the electricity market has thus increased further. The project began in 2018 with the design of the prototype and will run until 2021.

Artificial intelligence (AI) is a key technology of the future and is concerned with the automation of intelligent behaviour. It uses self-learning algorithms that adapt their behaviour based on experience gained during earlier computations and so learn to independently solve problems. EnBW is developing AI expertise along the whole value added chain with the aim of exploiting the significant competitive advantages on offer. For example, EnBW has developed **ADAZ (Application for Diagnosis, Analysis and Status Monitoring)** for the early identification of technical damage to wind power plants and to help avoid any subsequent damage. The system evaluates data at sampling rates of up to 50,000 pieces of data per second. It is thus possible to identify damage early and reduce repair costs. Wind power plants with a total output of 720 MW were already monitored by ADAZ in 2018. Savings of several millions of euros were achieved as a result. The services provided by ADAZ have already been marketed externally. In addition, a pilot project is being completed for a large, potential customer.

Photovoltaics: The University of Stuttgart has developed a laser process that enables the inexpensive production of non-toxic silicon solar cells with a high level of efficiency. These cells achieve higher efficiency because the electrical connections are all made at the rear of the cell and there are no contacts on the front which could shade some of the incident light. EnBW has been cooperating in this government-funded research project since August 2017. An efficiency of more than 22% was achieved using 16 inch cells for the first time in 2018. The EnBW subsidiary EnPV – founded in December 2017 – has started work on marketing the patented process.

Geothermal energy: The partners Électricité de Strasbourg and EnBW jointly operate the Soultz-sous-Forêts geothermal power plant in the Alsace region that uses a well-researched geothermal reservoir at a depth of 5,000 metres. The gross electrical output of the power plant is 1.7 MW. In 2018, the power plant generated 7.7 GWh of electricity as in the previous year with an availability of 96% (8,400 operating hours, previous year: 90%, corresponds to 7,900 operating hours). In cooperation with the company Stadtwerke Bruchsal GmbH, EnBW has been operating the Bruchsal geothermal power station since 2009. The demonstration plant generates electricity with a nominal output of 0.5 MW using 120 degree hot thermal water pumped from a depth of 2,500 metres. The power plant not only generates electricity but also district heating from geothermal energy for a public facility. The heating circuit was constructed in 2018 and will be placed into operation at the beginning of 2019. EnBW is thus expanding its geothermal expertise to include the supply of heating to customers.

Green gases

We also want to provide our customers with carbon-neutral gaseous energy sources in the long term. EnBW started a Group project in 2018 to identify the necessary steps towards a gas supply that will reduce CO_2 emissions from fossil fuels by 2030 and assess the technological possibilities for the period afterwards. The experience gained from various pilot and demonstration projects will help us achieve this. With the aid of government and state funding, EnBW carried out research into the fuelling infrastructure required for quick fuelling at a pressure of up to 700 bar and that incorporates flexible hydrogen electrolysis, most recently for buses in Stuttgart, at **hydrogen filling stations** in Karlsruhe and Stuttgart from 2011 to 2018. Since the beginning of 2019, the EnBW subsidiary ZEAG has been generating **green hydrogen** with the aid of state funding. It is using a 1 MW PEM electrolyser (PEM = proton exchange membrane) that converts green electricity from the "Harthäuser Wald" wind farm into green hydrogen. The green hydrogen is used in mobility initiatives in Baden-Württemberg, for generating heat at combined heat and power plants and at the rocket test rig at the German Aerospace Center (DLR) in nearby Lampoldshausen. Energiedienst Holding (ED) already opened an alkaline **hydrogen electrolysis plant** with an electrical output of 1 MW in Wyhlen in November 2018 – operated with green hydropower. The target market is the transport sector.

In the Biohybrid project, the EnBW subsidiary Erdgas Südwest has developed a concept to make biogas with the quality of natural gas available anywhere where customers may require electricity and heating without CO_2 emissions from fossil fuels. The key concept behind Biohybrid is to store biomethane in liquid form and feed it back into the gas grid as required. As a liquid fuel, Bio-LNG (LNG = liquefied natural gas) is also suitable for use in the transport sector. A market exists for Bio-LNG due to the current situation regarding CO_2 emissions. The company is currently looking for suitable sites in Baden-Württemberg for the first **Biohybrid plant**. The EnBW subsidiary bmp greengas is already handling the marketing of biogas products. A pilot project to examine the opportunities offered by carbon-neutral liquid energy sources will be carried out by ED and is currently at the detailed planning stage. In cooperation with its partners, the aim is to produce synthetic diesel and paraffin using CO_2 and hydrogen in Laufenburg. The approval for construction was given in 2018.

Storage systems for the smart digital energy world

Load management for electromobility: Our subsidiary Netze BW started the NETZlabor "E-Mobility Avenue" in Ostfildern near Stuttgart in 2018. Customers in the same street with eleven electric cars, a home storage system and a grid battery are helping us simulate a future centred on electromobility and enabling us to analyse user behaviour and the state of the grid. We can use this information to develop concepts for the efficient operation of the grid and to better exploit the mobile and fixed storage systems for smart electricity grids.

New technologies for the charging infrastructure: The EnBW Group is also investigating alternatives for electrifying transport. A test track for electrical **HGV goods traffic with overhead power lines** will be developed in the district of Rastatt between Gernsbach-Obertsrot and Kuppenheim by the end of 2019. Our grid subsidiary Netze BW is a strategic partner in the "eWayBW" project which will be run by the Transport Ministry of Baden-Württemberg until 2022. At the same time, EnBW is also working on **induction systems**. A feasibility study conducted together with the Karlsruhe Institute of Technology (KIT) concluded in 2018 that alternative operating strategies could make contactless charging via the road as the vehicle drives along it an attractive proposition. The research into these new possibilities is being continued.

Storage systems for commercial customers: EnBW cooperated in a demonstration project with the storage system supplier ads-tec, the solar experts from Pohlen Solar and the retail company Aldi Süd until 2018 to find out how the discount store could use even more self-generated solar electricity in their branches. The project has now been successfully concluded and has demonstrated that the shops can increase their own solar consumption even further using battery storage systems. The challenge is to guarantee the economic efficiency of the system against today's prices for storage systems and energy. In this practical test, EnBW was able to demonstrate the great potential offered by solar power plants in combination with storage systems depending on the control algorithms used.

Storage systems for household customers: In autumn 2016, three household customers were fitted with storage systems in order to develop a smart control system that can adapt to the availability of electricity on the grid and postpone the times

electricity is drawn from the grid without any loss in comfort. The project ended in June 2018 after running for two years. It has demonstrated that by using good battery management many households could significantly shift the times at which they draw electricity. The results from these storage projects with customers will also flow into the development of commercial products from our subsidiary SENEC, which EnBW acquired in 2018.

Power plant storage systems: Cross-sector considerations on how storage systems can provide added value led to a co-operation with Bosch to develop battery solutions for the energy market. The large 5 MW battery installed at the Heilbronn coal power plant was inaugurated in April 2018. It enables the power plant to respond even better to fluctuating decentralised feed-ins. EnBW is responsible for the marketing of the stored energy in this joint venture.

Beyond the main focal areas of renewable energies, green gases and storage systems, EnBW is also pursuing interesting individual projects such as **phosphate recycling:** In cooperation with its subsidiary MSE Mobile Schlammentwässerungs GmbH, EnBW has developed a process to recover phosphorous in mobile units at sewage treatment plants before the dewatered sludge is incinerated in power plants. Phosphorous is essential for plant growth but is in scarce supply in Germany. Following successful tests at seven sewage treatment plants, MSE concluded contracts for the recovery of phosphorous with two local authorities in Baden-Württemberg and North Rhine-Westphalia in 2018. Customers are thus offered resource-conserving recycling of sludge in accordance with the revised German Sewage Sludge Ordinance. The magnesium ammonium phosphate recovered in the process is a valuable plant fertiliser (www.msa-mobile.de).

Innovation management: Goals, guidelines and processes

The innovation process at EnBW

EnBW develops new business models outside of its core business through central innovation management in order to quickly identify new sources of revenue for the Group and bring them to the market. The innovation strategy focuses on two main approaches: the internal generation and scaling up of new business models in internal projects and investments in external start-ups by EnBW New Ventures GmbH. Following the successful development of new business models, the EnBW start-up teams then face new challenges in the growth and scaling up phase. In order to efficiently support teams during this phase, innovation management has established the Company Builder: It provides start-ups with additional skills in the form of controlling, sales and marketing experts so that the start-ups can optimise their products and position them on the market. For the refinement of existing sales channels or the development of new ones, support is also given in the areas of process automation and cost optimisation.

EnBW New Ventures invests in start-ups that are driving the converging markets for energy, mobility and urban living. It focuses on companies who realise value added through scalable business models and new technologies. The aim is to use the total available investment volume of €100 million to secure minority shareholdings of between 10% and 30% in up to 20 start-ups. EnBW New Ventures plays the role of an active investor, supports the start-ups as a business coach or kind of "sparring partner" and is represented on their boards. Via EnBW New Ventures, the start-ups receive access to professional investor expertise and to a customer and supplier network on the energy market. In addition, commercial cooperation with the operating units at EnBW is also possible. In order to target substantial growth, EnBW will in future, beyond the activities of EnBW New Ventures, also invest in start-ups which already have a tested business model and a successfully launched range of products/services.

Innovation: Key points and selected results

Virtual power plant (Glossary, p. 155): The energy system is being transformed into an ecosystem of numerous small and decentralised power plants that generate, save or consume electricity: photovoltaic power plants, wind turbines, batteries, electric vehicles and heat pumps. This produces complex energy networks that demand new skills. EnBW is utilising its expertise gained from the operation of highly complex systems and is transferring this knowledge to the development of new business models and a digital platform. The activities carried out by EnBW also include direct distribution of even the smallest regenerative power plants, electricity communities (P2P), digital trading access, dynamic tariffs and flexibility management.

Both the business models and the platform are designed so that new themes can be quickly added, existing skills from the stock of business models can be quickly recombined and a modern digital process landscape is maintained right from the beginning. Direct distribution enables customers to sell their own electricity – which will become the norm after EEG funding ceases. Alongside the established small-scale activities, the project has now developed a portfolio of more than 250 MW and has hundreds of customers. The flexibility management system controls the loads so that added value is generated for both customers and the energy system. Digital trading access ensures that even small companies will be able to benefit from the fluctuating and in some case negative prices on the market. This is where the superchargers from EnBW – currently consisting of more than 110 high-performance charging stations – are connected up, networked and supplied with electricity. Access for around 600 units is contractually guaranteed. Electricity communities bring together electricity generators and consumers from within the same region or bring them together virtually so that the community is able to collectively use and share electricity from a specific source. EnBW has already established numerous regional clusters of this kind in cooperation with the start-up Lumeneza, part of the EnBW New Ventures portfolio.

First micro business unit: In order to offer campus projects from EnBW better opportunities for growth, innovation management has created the concept of internal spin-offs in cooperation with the compliance and data protection department (p. 58). Mature projects with marketable business models that are in line with the EnBW strategy and have already generated their first sales can now be spun-off into so-called "micro business units". SMIGHT – the first micro business unit – was launched in May 2018 and it has now evolved from a campus project to an independent business unit. A new system of corporate governance in the form of the so-called "Basic Rules" has been created for the micro business units. The special feature of the Basic Rules is that as a micro business unit, SMIGHT can take advantage of Group services offered by EnBW such as legal advice or purchasing and IT services. On the one hand, the rules create the necessary scope for the further development of the business model, while on the other hand, they are subject to certain fixed targets and guidelines set by innovation management. The SMIGHT team have been able to almost triple their revenue between 2017 and 2018 as a result.

EnBW incubation programme: EnBW innovation management supports start-up projects during the incubation phase from the initial idea through to market launch and accompanies mature projects during the growth and scaling up phase with the Company Builder. A total of more than 30 start-up projects have been set up, put to the test, refined and in some cases rejected in the past four years. The aim is now to make the innovation process even more efficient and stringent with a new programme. Eight EnBW projects are currently participating in the so-called "16 to the power 4 incubation programme", which was launched at the Innovation Campus in Karlsruhe on 1 October 2018. External teams have also been able to apply to join the programme since January 2019 (www.sparkthefuture.de).

Five other projects have already completed the first incubation phase and are now at the market launch phase. They include two external company teams: binando who develop solutions for the digital management of waste based on the Internet-of-Things (IoT) and vialytics who develop artificial intelligence solutions for street management.

Four mature projects are currently in the growth phase:

- LIV-T – an independent spin-off joint venture from EnBW and mantro GmbH that develops data-based Internet of things (IoT) products that allow the energy infrastructure in buildings to be intelligently networked
- SMIGHT – a project that equips existing infrastructure such as street lighting, transformer stations or charging stations with sensors to optimise traffic flows, monitor the electricity grid or provide information on free parking spaces
- energybase – a smart energy management system used to optimise energy consumption
- WTT CampusONE – the award-winning digital learning platform

Innovation management: projects at incubation and market maturity stages

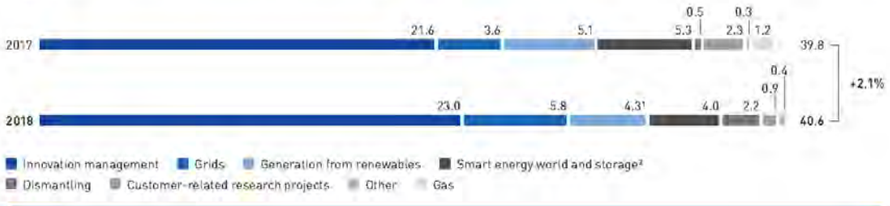
The holistic approach followed by EnBW innovation management was awarded the rating "very good" by the magazine "Capital" in 2018 for its stringency and depth.

Urban infrastructure: At the first EnBW Innovation Conference that was held in September 2018 at the Innovation Campus in Karlsruhe, the EnBW Group and selected start-ups presented innovative solutions for the city of tomorrow. EnBW used the event to demonstrate the innovative strength at the company and to show what the Group has in common with the world of start-ups. Especially against the background of the future transformation of EnBW into an urban infrastructure supplier, EnBW subsidiaries and cooperation partners were also included in the search for urban innovations. A concept that proved a big hit: More than 30 exhibitors presented their solutions for the city of tomorrow at the end of the event to around 500 guests from business, politics and the start-up scene. The exhibition was accompanied by a series of talks featuring renowned guest speakers.

Expenditure and personnel

The EnBW Group spent €40.6 million (previous year: €39.8 million) on research, development and innovation in the 2018 financial year. In contrast, the income generated by innovation management stood at €6.4 million. The Group received government research grants of €2.3 million (previous year: €2.9 million). There were 63 employees (previous year: 61) in the areas of research, development and innovation in 2018. 169 employees (previous year: 193 employees) were involved in research and development projects as part of their operational work. A further 110 employees (previous year: 105) were involved in innovation projects.

Expenditure on research, development and innovation
in € million



1 Also includes green gases.
2 Includes e.g. electromobility and hydrogen/mobility.

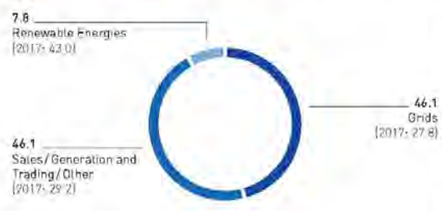
Procurement

Efficient and sustainable procurement processes

Purchasing at EnBW views itself as a partner for generating added value within the Group. It ensures the supply of materials and services at the best possible quality/cost ratio and thus strengthens the competitiveness of the company. EnBW places great emphasis on the efficient design of its procurement processes for achieving cost-effective purchasing results, as well as on sustainable procurement taking into account the requirements of national laws, EU law and the Group's internal guidelines. In order to manage the procurement processes, a system using various different performance indicators is used. It continually delivers a realistic picture of the current situation in purchasing and enables a comparison of the target and actual situation, as well as the prompt implementation of control measures.

The **procurement volume** of the EnBW Group in 2018 (without ITOs) (Glossary, p. 154) amounted to around €2.5 billion (previous year: around €4.1 billion).

Procurement volumes of the EnBW Group by segment
in %



A large number of suppliers and service providers contribute to the services rendered by EnBW. They play an important role in the company's efforts to achieve a leading position on the energy market. **Supplier management** promotes successful cooperation between suppliers and EnBW because it makes the performance of the suppliers transparent and also makes continuous optimisation in partnership possible. The careful selection of our business partners is a part of our risk management system and supports the observance of legal regulations and internally defined quality standards.

Sustainable procurement begins with the careful selection of business partners. Central purchasing at EnBW AG uses a standardised **pre-qualification process** for this purpose. Different thresholds are set depending on the product group and internal risk classification. Suppliers are required to provide a self-assessment via the EnBW supplier portal on whether they practise sustainable measures in the areas of data protection, quality management, environmental management, the respect for human rights, the fight against corruption and occupational health and safety. This self-assessment was completed by 90% of our suppliers by the end of 2018 (measured by procurement volume). Centralised documenting of certificates enables us to ensure that all the necessary prerequisites for awarding a contract are fulfilled. In general, the information is checked every three years on the basis of a renewed self-assessment. In the General Terms of Purchase of the EnBW Group, the supplier undertakes to observe the regulations on work safety, to pay a minimum wage and to observe the compliance and environmental principles of EnBW. In addition, the supplier undertakes to observe the regulations in the German Occupational Safety Act, the legal regulations for technical equipment, accident prevention regulations, the regulations on hazardous materials and any regulations on technical safety and occupational medicine in the "Additional Work Safety Terms of Purchase".

As a result of the increasing decentralisation of energy generation caused by the focus on renewable energies, the complexity of the supply chain is growing and integrated **supply chain management** is becoming more important. This requires a comprehensive examination of the value added chain and the early identification of opportunities and risks. Especially with regard to the selective internationalisation of the business, central purchasing has developed an integrated supply chain management system in close cooperation with the business and functional units. EnBW gave another indication of its aim to tap into selected international growth markets in the area of renewable energies with its entry onto the Swedish market and its first activities in France, Taiwan and the USA in 2018.

As part of the recertification audit according to ISO 14001:2015, it was confirmed that issues that must be handled by the **environmental management system** are firmly integrated into the processes in central purchasing and that the traceability of relevant goods is ensured over their entire life cycles. Purchasing has firmly anchored sustainability and the protection of the environment into the General Terms of Purchase. In the section on environmental management, suppliers undertake to support the environmental principles of EnBW – especially those relating to environmental and energy management, climate protection and energy efficiency, emissions protection, biodiversity, water and soil protection and the use of resources.

Subsidiaries of EnBW that are not overseen by central purchasing address a number of non-financial aspects in purchasing with their own mechanisms.

Energiedienst Holding (ED) works together closely with central purchasing at EnBW AG to procure important product groups using joint invitations to tender and framework contracts, as well as in the associated pre-qualification processes. In addition, orders are placed largely with regional suppliers from Germany, Switzerland or neighbouring EU countries. ED believes that cooperation with these suppliers has proven its worth due to good supplier relationships and short response times. The purchasing terms at the ED Group were revised in 2018 with respect to environmental management requirements.

Purchasing at Pražská energetika (PRE) ensures that suppliers observe practices such as the payment of social security contributions, the settlement of tax liabilities and the prevention of money laundering. Potential suppliers must verify their compliance with these aspects by either submitting a sworn declaration or by presenting corresponding certificates when bidding for invitations to tender. The fulfilment of these obligations is also stipulated in supplier contracts.

At Stadtwerke Düsseldorf (SWD), sustainability aspects are anchored in the compliance guidelines, environmental management system manuals and process descriptions. In the area of procurement, SWD pays particular attention to the use of environmentally friendly and sustainable products. It also uses clauses in its supplier contracts to reinforce the fight against corruption and bribery and ensure observance of labour and social laws.

The fundamental principles for procurement at VNG are regulated by a code of conduct, the management handbook and Group guidelines. Aspects such as the prevention of corruption – which is embedded in the compliance management system and environmental management system – are a fixed component of procurement processes.

Responsible raw materials procurement in the coal sector

Origin of coal supplies

Hard coal will continue to play an important role for EnBW as a source of energy to ensure a reliable and economic supply of electricity. Some 3.82 million t of coal were delivered to EnBW power stations in 2018 (previous year: 4.55 million t of coal). This corresponds to a procurement volume of almost €300 million.

Russia was able to significantly expand its leading position on the generally declining market in Western Europe due to its geographical proximity to the shipping ports. In contrast, Colombian coal now only plays a subordinate role in Western Europe because Colombian mining companies have been able to secure higher prices for their coal in America, Asia and the Mediterranean region. It was thus for commercial reasons that EnBW purchased significantly less coal from Colombia than in the previous year, irrespective of sustainability aspects.

The origin of coal sourced from Russia can only be localised to the mining region of the Kuznetsk Basin (Kusbass) due to the large number of coal mines and coal producers in the country. A similar situation exists in South Africa, where the coal is sourced from the Mpumalanga Province. In contrast, it is possible to precisely trace the source of coal from Colombia because the three major Colombian coal producers have their own shipping ports. EnBW AG purchased Colombian coal from the producers Drummond and Glencore for its power plants in 2018. The coal from the USA originated almost exclusively from underground mining in the Illinois Basin and the Northern Appalachians.

EnBW places importance on maintaining a balanced procurement portfolio to avoid becoming dependent on individual producing countries, producers or traders, and the associated price and supply risks. EnBW now covers the largest part of its coal requirements through contracts held directly with selected producers. In addition, contracts with trade intermediaries are concluded which define a quality standard but not the source of the coal. More information on coal procurement at EnBW can be found at www.enbw.com/coal-procurement.

The opportunities and risks in relation to procurement and raw materials procurement can be found in the "Report on opportunities and risks" (p. 118).

Origin of coal supplies to EnBW power plants
in million t

Positioning, overarching concepts and due diligence for the protection of human rights

In accordance with the Guiding Principles on Business and Human Rights of the United Nations, EnBW strives to procure coal responsibly and thus to fulfil its human rights responsibilities. Due to the special challenges faced in the area of coal procurement, the ongoing CSR performance (Glossary, p. 152) of current and potential coal suppliers is regularly discussed on the basis of the **EnBW rules of conduct** governing the responsible procurement of hard coal and other raw materials (www.enbw.com/verhaltenskodex) and used to determine any future action. The coal suppliers are evaluated on the basis of relevant international standards, such as the UN Global Compact, the OECD Guidelines and the IFC (International Finance Corporation) Performance Standards. The latest studies by competitors and international initiatives also flow into the evaluation of producers, such as information and contributions from civil society organisations.

Our code of conduct in combination with internal guidelines acts as the foundation for the targeted achievement of responsible coal procurement. The annual assessment of coal producers is carried out using the EnBW sustainability index, which covers all areas of the code of conduct. In addition to regular auditing of the sustainability performance of business partners, a multi-stage auditing process will come into force in the event of suspected breaches of the code, which can lead to the termination of the business relationship or exclusion from our procurement process. The results of the analyses in the sustainability index are discussed as part of a control process by the committee for the responsible procurement of raw materials (comprising members from all relevant specialist departments) at least once a year. Findings from discussions with external stakeholder groups, such as representatives from civil society, legal experts for the individual countries and human rights experts, also flow into these analyses. If any deviations from the minimum standards are identified, corrective measures are implemented in cooperation with the producers for existing supply contracts. The committee for the responsible procurement of raw materials met on two occasions in 2018, to discuss the sustainability performance of all significant supplier companies on the basis of existing findings from the sustainability index, as well as current issues related to the import of raw materials.

Current developments

EnBW continued to follow its approach for the responsible procurement of coal in the reporting year and implemented the measures approved by the Board of Management in 2017. Although imports from **Colombia** fell sharply in 2018 – irrespective of sustainability issues as described above – EnBW continued its dialogue with Colombian producers for the ongoing improvement of their CSR performance. In February 2018, representatives from EnBW visited two coal producers in the Cesar mining region. In addition, numerous individual discussions were held with different governmental and non-governmental players. The exchange of information and opinions focussed on, amongst other things, the working and living conditions in the region, the importance of coal exports for the development of Colombia and the contribution being made by the coal producers to the implementation of the peace process in the country.

The trip to Colombia was also used to collect information for a **progress and development report**. The purpose of the report is to analyse the improvements achieved in the working and living conditions in Colombian coal mining in the period from 2013 to 2018 – especially with a focus on the engagement of coal importers. The results of the study will be used to derive possible courses of action for EnBW that could form the basis for further dialogue with coal producers. The aim is to agree a clear roadmap in cooperation with the coal producers about how coal producers can fulfil human rights responsibilities. The report is due to be completed in 2019.

EnBW also intensified its efforts to collect information on coal mining in **Russia** in 2018, especially with respect to the working and living conditions in the most important mining region of Kusbass. This also included requesting CSR information from coal producers. Other insights were gained through discussions with representatives of Russian and German civil society organisations who deal with the social and ecological impact of coal mining in Russia. These discussions mainly focussed on the insufficient level of information on CSR aspects in the region and problems encountered when visiting the coal mines. It also became clear during the talks that NGOs in Russia take a different approach to discussions about potential problems. Direct confrontation with companies in the region is unusual and there is generally no open dialogue between the companies and NGOs on an equal footing. It is thus all the more important for EnBW to find opportunities in this area to influence the CSR efforts made by the Russian coal producers. In order to identify measures that can be taken, discussions are also being held with other companies that source coal from Russia.

In preparation for future (liquid) gas contracts with business partners from various countries, preliminary human rights assessments were carried out that then flowed into the subsequent procurement process.

Business Report

General conditions

External influences

The business performance of EnBW is greatly influenced by a wide range of external factors. These include, above all, the development of the wholesale market prices for electricity, the political/regulatory framework conditions and also the weather conditions. The price of electricity is not only dependent on demand but also on the development of the global markets for fuel and CO_2 allowances (Glossary, p. 152). In an environment characterised by a constantly growing share of generation accounted for by renewable energies, earnings are naturally influenced by the weather conditions. Important factors are, for example, the wind strength at sea and on land, the duration and intensity of sunlight and the amount of precipitation that impacts the water levels in rivers. In addition to these factors, the energy sector is still experiencing a period of fundamental change due to the transition to increasingly carbon-neutral methods of energy generation. The sales markets for our products and services are characterised by very intense competition with an increasing number of new players on the market. Furthermore, patterns of demand amongst customers, the market structure and technological requirements are changing.

Macroeconomic trends

Economies

The economies relevant for EnBW developed differently in 2018. Economic growth in Germany slowed compared to the previous year but remained at a high level, whereby private consumption continued to play an important role. The rate of economic growth in the eurozone as a whole also slowed a little. In contrast, the pace of economic growth accelerated in Switzerland. Turkey experienced a severe economic slump – the inflow of foreign investment and the tourism business both declined due to increasing political uncertainty. In general, the political and economic risks grew in Turkey in 2018.

Economic growth in Europe and Germany is set to slow down slightly in 2019. We anticipate that the general conditions for the business activities of EnBW will stabilise in 2019.

Development of gross domestic product (GDP)

in %	2019	2018	2017[1]
World	3.5	3.7	3.8
Eurozone	1.6	1.8	2.4
Germany	1.3	1.4	2.5
Switzerland	1.8	3.0	1.7
Czech Republic	3.0	3.1	4.3
Turkey	0.4	3.5	7.4

1 The figures for the previous year have been restated.

Development of interest rates

While the US Federal Reserve raised interest rates multiple times during 2018, the European Central Bank (ECB) continued its expansive monetary policy. In the second half of the year, the rates of return fell significantly due to political events (Italian election), increasing protectionism (trade tariffs) and the global turbulent economic environment.

The discount rates applied to company pension provisions and nuclear provisions remained at a low level in 2018 so that the present value of the pension obligations of EnBW was not subject to any change and the present value of the nuclear obligations was only subject to minor interest rate-driven changes.

The consensus forecasts for the ECB main financing rate remained unchanged at 0.00%.

Development of the sector and competitive situation

The energy sector is still in the middle of a period of fundamental change. This pertains to the transformation of the generation landscape and also to the transport transition, heating transition and increases in efficiency in energy consumption. In particular, renewable energies will increase their share of the mobility and heating sectors in the long term. In parallel, the business models followed by energy supply companies are changing and new players from outside the sector are also entering the energy market. This is especially true for the commodity and solutions business.

At the same time, companies are repositioning themselves along the traditional value added chain in the sector and specialising in certain business fields. A prominent example in the past year was the transaction between RWE and E.ON.

Another aspect is the desire amongst cities and communities to remunicipalise their electricity and gas supplies in the regulated grid sector. Against this background, the traditional energy supply companies need to re-examine their competitiveness in individual business areas, exploit the potential offered by a changed market environment and align their strategies for the future (p. 38 f. and 48 ff.).

Selection of international, national, regional and new competitors

Cross-segment framework conditions

Climate protection

Climate protection remains a global challenge. The prolonged dry spell and high temperatures in the exceptionally hot summer of 2018 already gave some insight into the possible consequences of climate change for Germany.

The 24th UN Climate Change Conference was held in Katowice in December 2018. The international community agreed to joint measures for limiting global warming to significantly below two degrees Celsius in accordance with the Paris Agreement from 2015. The general rulebook adopted at the conference included, amongst other things, binding minimum standards for reporting on greenhouse gas emissions (Glossary, p. 153) and other climate protection measures. According to an estimate published by the Intergovernmental Panel on Climate Change (IPCC) in October 2018, which was acknowledged by the international community, CO_2 emissions must be reduced by about 45% from the level in 2010 by 2030, and reach zero by 2050 in order to limit global warming to 1.5 degrees Celsius.

The European Council agreed on measures to strengthen climate protection in 2018. These measures included a new Energy Efficiency Directive that defines a minimum energy efficiency target of at least 32.5% for 2030 compared to 2007, and a new version of the Renewable Energy Directive with the target of covering at least 32% of electricity consumption with renewable energies by 2030. In addition, the EU Parliament agreed to reform the European emissions trading system, whereby the annual reduction factor will be raised from 1.7% to 2.2% from 2021. A temporary increase in the prices of up to €25/t CO_2 for emissions trading was the result.

In Germany, the national climate targets for 2020 will not be achieved. In order to minimise the deviation from the targets for 2020 and ensure the targets for 2030 will be achieved, additional measures are required. Amongst other things, the German government has thus announced new legal regulations. The aim is to increase the share of gross energy consumption accounted for by renewable energies to 65% by 2030. The Omnibus Energy Act, which was passed by the Bundestag in November 2018, includes special auctions in the period from 2019 to 2021 with a total capacity of 4 GW each for onshore wind and photovoltaic power plants. Climate protection is also becoming a more significant issue for the business community. For example, Foundation 2° – an initiative started by German businesses – is committed to climate protection and limiting global warming to significantly below two degrees Celsius. EnBW and its CEO, Dr. Frank Mastiaux, have been members since May 2018. The aim of the initiative is to support politicians in the creation of the market economy-based framework conditions for climate protection.

EnBW is also advocating the introduction of a minimum price for CO_2 in order to help steer investment towards climate-friendly technologies. A minimum price could be introduced in Germany but this measure should cover as many European countries as possible, such as France.

The EnBW Chief Financial Officer, Thomas Kusterer, is a member of the Technical Expert Group on Sustainable Finance (TEG) (Glossary, p. 155), which is supporting the European Commission up to the end of 2019 in the development of a legal framework for sustainable financing opportunities. Thomas Kusterer is also a member of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, p. 155) for the development of climate-related risk reporting. In October 2018, EnBW published its first Green Financing Framework and issued its first green bond (Glossary, p. 153) with a volume of €500 million (p. 85 f.).

The strategy being followed by EnBW of concentrating investment on renewable energies, expanding the grids and developing new and increasingly digitalised business models works towards the achievement of the targets set at the Climate Change Conference, while the strategy itself is being validated by the international efforts for climate protection.

Coal Commission

The German government agreed to the creation of a commission on "Growth, Structural Change and Employment" in its coalition agreement. The commission was tasked with defining an end date for coal-fired power generation and also with developing measures to help Germany close the gap on achieving the climate protection target for 2020 and achieve the target for 2030. In addition, it was asked to make recommendations for structural change in regions that will be affected by the end of coal production. The commission started work in June 2018 and presented its final report on 26 January 2019. It recommends the termination of coal-fired power generation in Germany by 2038. However, this deadline could be moved forward to 2035 if a review to be carried out in 2032 indicates that an earlier termination date would be possible. German brown and hard coal capacities in the energy industry should also be reduced to 15 GW each by 2022 (total brown coal and hard coal capacities are currently around 42 GW). A further reduction in the total capacities to 17 GW will then required by 2030. The commission has outlined compensation rules for the period up to 2030 for the operators of the power plants to be decommissioned. These rules recommend that brown coal and hard coal power plants are decommissioned on the basis of voluntary agreements up to 2022. This rule will remain valid for brown coal power plants up to 2030. In the period between 2023 and 2030, a degressive decommissioning premium for the hard coal power stations will be offered for tender. Further details about the design of the compensation rules are not currently known.

Activities in Turkey

EnBW has been actively involved in the expansion of electricity generation in Turkey, above all through investment in wind power plants, as part of its joint venture with its Turkish partner Borusan since 2009. We currently operate the fourth largest wind power portfolio in Turkey with an installed output of 436 MW together with Borusan. Other potential wind power projects with a total output of around 600 MW are currently in development. We still believe that the Turkish market is an attractive proposition for the future, although the current political and economic unrest have unsettled many investors. We are carefully monitoring the developments in Turkey together with our partner.

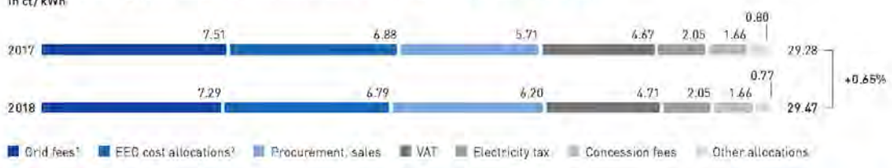
Sales segment

Electricity and gas prices for retail and industrial customers

According to an analysis of electricity prices by the German Association of Energy and Water Industries (BDEW) published in January 2019, the average monthly electricity bill for a household with an annual consumption of 3,500 kWh in 2018 came to €85.94 compared to €85.42 in the previous year. Taxes and levies account for more than half of this amount. EnBW increased the price for the basic supply of electricity by around €32 per year on 1 April 2018. The reason for this development was the higher grid-user charges. In the case of industrial customers receiving a medium-voltage supply, the average electricity price including electricity taxes increased according to calculations made by BDEW by 5.1%, from 17.09 ct/kWh in the previous year to 17.96 ct/kWh in 2018.

According to calculations by the German Federal Statistical Office in 2018, natural gas prices for private households had fallen by 1.4% compared to the previous year; the price of natural gas for industrial customers increased by 14.9%.

Average electricity price for a 3-person household (annual consumption of 3,500 kWh)
in ct/kWh



1 Including metering and metering station operation.
2 German Compensation Mechanism Ordinance (AusglMechV) has been applied since 2010.
Source: BDEW | As of January 2019

Structural changes

Greenhouse gas emissions (Glossary, p. 153) in the transport sector need to be reduced by 42% by 2030 compared to the figure in 1990, for climate protection reasons. The gradual **decarbonisation of the transport sector** will be necessary in order to achieve this target. Carbon-neutral fuels such as hydrogen or synthetic fuels (e-fuels) can make a contribution, while above all the transition to battery-powered electric vehicles will make the achievement of this target possible. The number of newly registered electric vehicles increased by 24% in 2018 and accounted for 1.9% of all new registrations. In 2018, the EU agreed to set stricter emission targets for the fleets of passenger cars and light commercial vehicles. The CO_2 emission limit for fleets, which is valid from 1 January 2021, is 95 gCO_2/km, which will decrease by 37.5% in two stages up to 2030 to 59 g CO_2/km (in 2030). In order to comply with these limits, it will be necessary to increase the proportion of electric vehicles significantly in the coming years. Government subsidies, such as the tax exemptions for electric company cars that are valid from January 2019, create an incentive to purchase these vehicles. In parallel, the charging infrastructure (Glossary, p. 153) is being expanded further. Alongside charging at home, the ability to charge at work and in car parks will become increasingly important. Large department stores and hardware stores are equipping their car parks with quick-charging stations. A network of quick-charging stations with ever increasing charging outputs is being installed along the motorways. 150 kW charging stations reached market viability in 2018. In future, they will be supplemented with other 350 kW charging stations. There were 13,500 public and semi-public charging points at 6,700 charging stations across Germany in the middle of 2018, which represented a 25% increase compared to the previous year. EnBW is engaged in the expansion of the charging infrastructure for household customers and also for commercial and local authority partners. As a result of sale campaigns, it was possible to supply over 500 electric cars to employees and customers in 2018.

The German government aims to achieve a climate-neutral building stock by 2050. Achieving high levels of **energy efficiency in buildings** is a key factor in this area. The Building Energy Act (GEG), which is due to be passed in the summer of 2019, will combine the various legal requirements for the energy-related properties of buildings in one law. However, these stricter energy-related requirements have already been anticipated in the construction of new buildings in many cases. Due to the lower heating demands in these buildings, heat pumps can be used as an energy-efficient form of heating. The proportion of new buildings using heat pumps has been increasing for a number of years and stood at 27% in 2017. It is also possible to improve the energy efficiency of existing buildings by replacing the heating system. Around 3% of heating systems are currently replaced per year. Due to the age structure of heating systems, this rate is set to increase in the coming years. On average, 17% of all the heating systems installed in residential buildings are 30 years old or older. Two thirds of the heating systems are considered to be inefficient. The replacement of a heating system is often also accompanied by a switch in energy source to natural gas, district heating or renewable energy sources. EnBW has identified huge opportunities for growth in the dynamic heating market and offers its customers a broad range of products for energy-efficient and low-carbon heating solutions for new and existing buildings – also in the form of contracting solutions.

The rate of expansion in energy generation from renewable sources needs to increase in the coming years in order to achieve the 65% target for the share of gross energy consumption accounted for by renewable energies by 2030. Alongside the increase in expansion of wind energy, it will also be necessary to double the current EEG target values for the annual **expansion in photovoltaics**. Following a failure to achieve the expansion target in the past few years, the target value of 2.5 GW was achieved again for the first time in 2018. More than two thirds of the expansion in photovoltaics in 2018 came from rooftop systems, with up to 750 kWp in the commercial sector, the housing industry and private buildings. In order to increase the consumption of own electricity in private buildings, 50% of newly installed photovoltaic power plants are equipped with a battery storage system. EnBW is committed to increasing own consumption of solar energy and offers customers innovative photovoltaic storage solutions.

The market for **home storage systems** is growing dynamically – around 100,000 decentralised storage systems were installed in households in 2018. We also expect high growth rates in the future and anticipate that a higher proportion of the photovoltaic power plants installed in the household sector will be combined with a home storage system. EnBW is represented on the market for home storage systems by its subsidiary SENEC.

Decarbonisation, digitalisation and an increase in energy efficiency are all necessary for the success of the Energiewende. The new energy world will crossover and connect more and more sectors in the future. Climate protection will become a key task for cities and communities – including the sustainable planning of urban districts. The electricity, heating, cooling, mobility and communication needs of customers must be considered in a holistic manner and the necessary infrastructures coordinated and harmonised with one another. EnBW supports its customers in these complex tasks through **cross-sector planning services and the implementation of customer-oriented urban district solutions**.

Grids segment

The **regulatory framework conditions that were defined for the electricity and gas grids** in the third regulatory period had a significant influence in 2018. In particular, cost assessments are very relevant for our grid operators because the results have a significant effect on their earnings situation.

The **rates for return on equity for electricity and gas grids** defined by the Federal Network Agency for the third regulatory period were repealed by the Higher Regional Court in Düsseldorf on 22 March 2018, because the interest rates should be increased. The Federal Network Agency filed an appeal against the judgement with the German Federal Court of Justice on 25 April 2018. The court has not yet handed down its judgement.

According to the Incentive Regulation Ordinance, the **general sectoral productivity factor** (Xgen) [Glossary, p. 154] has to be recalculated before the start of each regulatory period by the Federal Network Agency from the third regulatory period onwards. For the duration of the third regulatory period for gas (2018 to 2023), the Federal Network Agency has defined an Xgen of 0.49% for the gas grid operators. Hundreds of gas grid operators appealed against this decision to the Higher Regional Court in Düsseldorf. The general productivity factor for operators of electricity grids for the next regulatory period for electricity (2019 to 2024) was set at 0.9% by Ruling Chamber 4 of the Federal Network Agency on 28 November 2018. It is notable that the Xgen for electricity grids will be almost twice as much as that for the gas grids. Grid operators, including Netze BW, will also appeal against this decision.

The Bundesrat agreed an ordinance for the gradual **introduction of uniform transmission grid fees** across Germany on 8 June 2018. The harmonisation of the transmission grid fees for the four German electricity transmission system operators (TSO) began on 1 January 2019. According to the new regulations in the transmission grid fee ordinance, the fees will be harmonised in the period up to 2023 in five stages, each covering 20%. The transmission grid fees for our subsidiary TransnetBW will rise as a result.

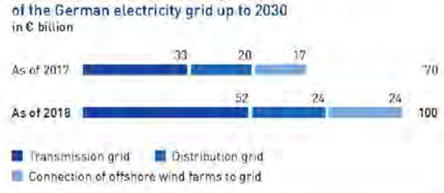
On 12 December 2018, the German Federal Cabinet agreed the **draft act to accelerate the power grid expansion** for the electricity transmission grid. The act revises the so-called Grid Expansion Acceleration Act (NABEG). An important objective is to simplify and speed up the approval process for the new construction, improvement and optimisation of high and extra-high-voltage lines. The act is an important component for the quick expansion of the grids that is required for the success of the Energiewende. It is due to come into force in the first half of 2019. EnBW hopes that these measures will create improved framework conditions that will allow the transmission system operators to implement the required grid expansion measures on time.

The TSO submitted their first draft of the next national **Network Development Plan Electricity** (NDP Electricity) [Glossary, p. 154] for 2030 for consultation on 4 February 2019. It is based on the framework scenario defined by the Federal Network Agency on 15 June 2018. In particular, it takes into account the German government's aim to increase the proportion of gross electricity consumption covered by renewable energies to 65% by 2030. According to assessments made by the TSO, around 1,600 km of additional newly constructed grids will be required by 2030 due to the raised target. Following the consultation phase, the TSO must submit a revised NDP (second draft) to the Federal Network Agency for approval.

Alongside the integration of renewable energies in the **expansion and restructuring of the power grids**, greater focus is also being placed on sector coupling [Glossary, p. 154]. For example, the electricity grid also needs to be equipped for the expected escalation in the number of electric vehicles. Our subsidiary Netze BW has started the pilot project "E-Mobility Avenue" in Ostfildern to test the charging behaviour of users and the effects on the electricity grid. Netze BW was the first metering point operator to install a BSI certified smart metering system [Glossary, p. 154] for a private household in December 2018. This marked another important milestone for the Energiewende.

There is also an ongoing need to **expand the electricity grids**, especially the high and extra-high-voltage lines, to ensure that generation and consumption is balanced across regions and nationally. However, there is also a need for significant investment at lower voltage levels in the electricity distribution grid in future, due primarily to advancing sector coupling [Glossary, p. 154] as a result of electromobility and electrical heating applications. In the regulated grid business, an increasing level of tension is expected overall due to, for example, the reduction in the equity yield rate. Investment in the expansion of the grids may reduce the earnings pressure on the grid operators but appropriate returns are necessary in order to continue pushing forward the expansion of the grids and to guarantee the security of supply in Germany. Overall, we anticipate that the grid business of the EnBW grid subsidiaries will be faced with more economically challenging framework conditions in the future.

Predicted investment in the expansion of the German electricity grid up to 2030
in € billion



Source: Draft NDP Electricity 2030, version 2019, NDP Electricity 2030, version 2017, UMWI 2014 Distribution Grids Study, own estimates

Aside from the impending expansion of the grids, other measures were also taken by the transmission system operators in 2018 to **guarantee the stability of the grid** in the long term. Alongside maintaining 6,600 MW of decommissioned capacity at power plants still classified as system-relevant, the German transmission system operators, including TransnetBW, issued an invitation to tender for the construction of 1,200 MW of new power plant capacity. EnBW participated in the tender process with a new facility at the site in Marbach.

On 29 March 2018, the gas transmission system operators submitted a revised draft of the **Network Development Plan Gas** (NDP Gas) [Glossary, p. 154] for the period from 2018 to 2028. For the proposed measures, investment of around €7 billion will be required by 2028 in order to safeguard the transmission requirements for Germany and Central Europe. The Federal Network Agency approved the NDP Gas on 20 December 2018 with requests for changes and ancillary provisions. Due to damage to one of the two TENP (Trans Europa Naturgas Pipeline) natural gas lines, the transmission system operators also proposed three additional grid expansion measures (54 km of new gas lines, €171 million investment volume) in the middle of 2018 to supplement the NDP. In particular, these measures are required to safeguard the supply to Baden-Württemberg because the transport capacity of the TENP line up to 2020 is only expected to be available to a limited extent. In order to satisfy the increasing demand for capacity in Baden-Württemberg, our transmission system operator terranets bw is expanding its own infrastructure accordingly. This will include the construction of the so-called "Neckar-Enz Valley line" and the expansion of the Scharenstetten compressor station as envisaged in the NDP.

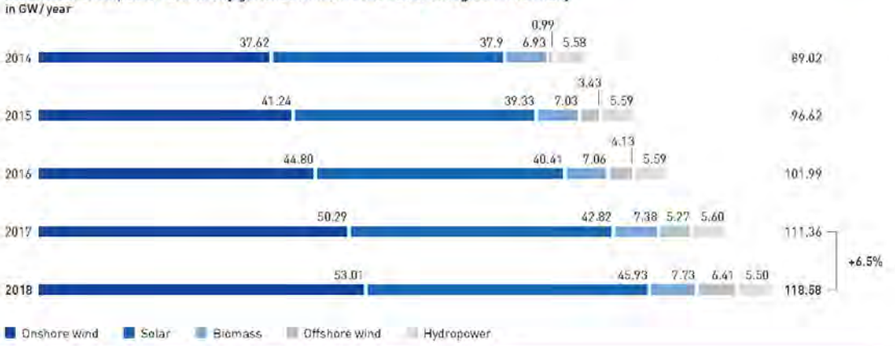
The **reform of the Gas Grid Access Directive** (GasNZV) from 7 July 2017 stipulates that the two German market areas NetConnect Germany (NCG) [Glossary, p. 154] and GASPOOL [Glossary, p. 153] must be merged by 1 April 2022 at the latest. The transmission system operators and the Federal Network Agency have already agreed on the date of 1 October 2021 for the launch of the joint German gas market area. This date is also the start of the gas business year and was considered the most suitable choice for all market participants. EnBW believes that the merging of the two German market areas is a necessary step in the further development of the German gas market.

Renewable Energies segment

The costs for using renewable energies reduced significantly around the world in 2018 and the very dynamic growth of this market continued. Numerous countries are currently developing funding mechanisms and targets, which should help to sustain this expansion. In Europe, the first major projects for the generation of electricity from renewable energies without the need for state funding were realised in 2018.

Electricity generation from renewable energies rose again significantly in Germany in 2018. According to the Fraunhofer ISE [www.energy-charts.de], the proportion of total German electricity generation accounted for by sustainable energy generation increased to just over 40% (2017: around 38%). The installed capacity of renewable energies increased by around 7.3 GW in Germany in 2018 (of which photovoltaics around +3.6 GW, onshore wind +2.7 GW and offshore wind around +1 GW). The special auctions for renewable energies (4 GW each for photovoltaics and onshore wind energy) announced in the coalition agreement of the German government – which are welcomed by EnBW – are expected to be held between 2019 and 2021. However, the adjustment to the expansion target for offshore wind energy for 2030 that was also announced in the coalition agreement has not yet been implemented.

Installed net output for electricity generation from renewable energies in Germany
in GW/year



Source: AGEE, BMWi, Federal Network Agency | As of 31/01/2019

There was a clear drop in the number of projects eligible to participate in the German auctions for **onshore wind energy** in 2018. The reason for this is that the privileges enjoyed by community energy cooperatives [Glossary, p. 152] and the increasing number of obstacles that need to be overcome to secure regional approval have led to significant delays in many projects. The resulting shortage of bids was also reflected in the average prices for those bids accepted in the auctions, which rose significantly compared to the previous year (from around 4.6 ct/kWh in 2017 to more than 5.7 ct/kWh in 2018). Plans to enshrine regional control over the expansion of onshore wind energy in law have not yet been realised. EnBW was also impacted in 2018 by the uncertainty in the investment environment for onshore wind energy in Germany. Therefore, we advocate regional control over the expansion of onshore wind energy to exploit opportunities for the expansion of renewable energies close to where the energy is consumed, especially in the south of Germany.

In the cross-technology auctions held in 2018, only bids from **photovoltaic projects** were accepted. This outcome reflects the global trend, whereby photovoltaics have become the cheapest technology in the area of renewable energies. This trend can also be seen in the regular auctions for open-field solar projects in Germany. The average price of the bids accepted for large solar projects thus fell from around 5.7 ct/kWh in 2017 to

around 4.5 ct/kWh in 2018. EnBW is aiming to become the pioneer in Germany for open-field photovoltaic power plants without state funding (p. 50).

Generation and Trading segment

Electricity wholesale market

Prices on the wholesale market for electricity rose significantly during the course of 2018. The average spot market price (Glossary, p. 154) of €44.47/MWh was around €10/MWh above the level in the previous year. This development was due, on the one hand, to rising prices for coal, gas and CO_2 allowances (Glossary, p. 152), while on the other hand, low water levels, especially in the Rhine river in the second half of the year, caused transport restrictions and a sharp increase in logistics costs and the lower availability of power plants. At the same time, feed-ins from wind power plants were significantly below the level in a normal year.

The front year base load price (Glossary, p. 152) on the forward market (Glossary, p. 153) of around €44/MWh was also considerably higher than the level in the previous year. There was a continuous increase in the price between March and the middle of September 2018, which was followed by lateral movement with a high level of volatility. In the future, the forward market prices in Germany up to 2022 show a downward trend. This development reflects – alongside falling prices for imported coal – the expectation of market participants that the further expansion of renewable energies will result in structural changes to conventional generation in the future. Overall, prices for electricity will remain highly dependent on the development of prices for fuel and CO_2 allowances. In the medium term, the price level will be increasingly influenced by changes in energy and environmental policies at home and abroad.

Development of prices for electricity (EPEX), base load product

in €/MWh	Average 2018	Average 2017
Spot	44.47	34.19
Rolling front year price	43.84	32.38

Gas market

Long-term gas import contracts form a primary basis of Germany's gas supply. The wholesale markets, such as the Dutch TTF and the trading point of the NetConnect Germany (NCG) (Glossary, p. 154) market area, are other important sources of natural gas. Prices track the oil price trends with a time lag. As a result of the increased supply of Liquefied Natural Gas (LNG) from the USA and Australia, the dependency of the gas price on the price of oil has, however, fallen in Europe. In addition, the price of gas was influenced above all by the temperatures during the winter half-year. Although the average temperatures in winter 2017/2018 were close to the long-term average, the cold spell in north-west Europe and Germany from the end of February to the beginning of March led to a short-term increase in prices. Due to the cold spell, gas storage levels were very low in the summer months which led to increased demand. In addition, deliveries of LNG to north-west Europe remained below market expectations due to strong demand from the Asian region. In combination with high oil prices in comparison to the previous year, these factors have resulted in increased prices on the spot and forward markets. The border price index for natural gas published monthly by the German Federal Office of Economics and Export Control (BAFA) stood at €20.80/MWh in November 2018, which was 14.7% above the December 2017 figure (€18.13/MWh) and 18.2% above the figure for the same month in the previous year (€17.60/MWh). Due to the good supply situation on the gas markets and the fact that the gas storage facilities in Germany are relatively well stocked, we do not anticipate that prices will rise further in the short term.

Development of prices for natural gas on the TTF (Dutch wholesale market)

in €/MWh	Average 2018	Average 2017[1]
Spot	22.98	17.33
Rolling front year price	20.70	17.00

1) The figures for the previous year have been restated.

Oil market

The caps in production introduced by OPEC and some non-OPEC countries including Russia, the continued fall in oil production in Venezuela and the dynamic increase in demand for oil and oil products worldwide initially resulted in a decrease in global stock levels in 2018. The stock levels held by the OECD countries fell below the five-year average again from March for the first time. Another shortage in supply was caused by the reintroduction of US sanctions against Iran and its oil sector as part of the USA's withdrawal from the international nuclear deal with this country. These factors led to a sharp increase in crude oil prices (Brent) to more than US$85/bbl at the beginning of October. A huge turnaround in this trend from October resulted in oil prices falling since then to below US$60/bbl. The main causes for this fall in prices were the renewed increase in OECD stock levels due to unexpectedly high global oil production and concerns about the development of the world economy against the background of the trade dispute between the USA and China and the associated growth in demand for oil. Further price developments will be mainly influenced by the extent to which the agreed production cuts are actually implemented by OPEC, the supply situation outside of OPEC and the continuation of the trade dispute between the USA and China.

Development of prices on the oil markets

in US$/bbl	Average 2018	Average 2017
Crude oil (Brent) front month (daily quotes)	71.69	54.75
Crude oil (Brent), rolling front year price (daily quotes)	68.94	54.87

Coal market

Following a drop in coal prices in the first quarter of 2018 due to a sharp fall in prices on the Chinese coal market, prices recovered by the end of the second quarter and exceeded the level at the beginning of the year. This was primarily due to a very strong increase in demand from China and the simultaneous rise in oil prices. Following a brief period of consolidation in the summer, the same factors led to a further increase in coal prices and caused the API 2 front year price to rise to over US$100/t for the first time since 2012. Coal prices fell significantly again from the middle of October due to falling oil prices, weaker demand in China and the restrictions announced on coal imports into China. Overflowing coal stocks in the Amsterdam–Rotterdam–Antwerp coal trading hub due to low water levels in the Rhine river also resulted in additional pressure to sell.

The future development of prices for coal will be largely determined by China which is by far the largest consumer. The unpredictable nature and timing of the sometimes major interventions by the Chinese authorities to regulate the domestic coal market have increased the volatility of coal prices. A slowdown in the global economy due to the intensification of international trade disputes and the continued strength of the US dollar could result in a fall in coal prices. In addition, freight prices and the price of oil will also have a significant effect on future prices on the coal market.

Development of prices on the coal markets

in US$/t	Average 2018	Average 2017
Coal – API #2 rolling front year price	87.03	73.70
Coal – API #2 spot market price	91.91	84.52

CO_2 allowances

Under the European emissions trading system, proof must be provided of the correct number of CO_2 allowances (Glossary, p. 152) for the corresponding CO_2 emissions from power plants. In 2018, supply and demand stood at around the same level. Nevertheless, the price of EUA certificates (Glossary, p. 153) increased sharply in 2018 from around €8/t CO_2 to around €25/t CO_2. This was primarily attributable to speculative demand due to the expectation of further price increases because the reform of the market stability reserve (MSR) – a measure drawn up by the EU Commission to reform the European Union emissions trading system over the long term – will result in a significant reduction in supply over the next four years. Therefore, further price increases are expected in 2019 and in subsequent years.

Development of prices for emission allowances/daily quotes

in €/t CO_2	Average 2018	Average 2017
EUA – rolling front year price	15.62	5.77
CER – rolling front year price	0.24	0.23

Nuclear power

The coalition agreement of the German government sets out the framework for current nuclear power policy: The main targets are the retention of specialist personnel and expertise, quick progress in the search for a final storage site for highly radioactive waste (by 2031) and the rapid commissioning of the final storage site for low and medium-level radioactive waste (2027 according to the current plans). This should prevent the intermediate storage at the power plant sites becoming, to all intents and purposes, the final storage sites. The 16th amendment to the German Atomic Power Act came into force in July 2018. On the basis of the ruling by the German Federal Constitutional Court from 6 December 2016, operators of nuclear power plants should receive compensation payments for investment in the period between the decision to extend the lives of the nuclear power plants (28 October 2010) and the reversal of this decision (from 16 March 2011), as well as for residual volumes of electricity remaining at power plants that could no longer be distributed. A transparency ordinance from the German Federal Ministry for Economic Affairs and Energy specifies the disclosure obligations of the operators with respect to their provisions for the decommissioning and dismantling of their nuclear power plants and the packaging of radioactive waste. On the basis of the public law contract according to the Act for the Reorganisation of Responsibility in Nuclear Waste Management, EnBW has submitted an application for the approval of the return transport of radioactive waste from the reprocessing centre in France to the intermediate storage site at the Philippsburg nuclear power plant. A precise date for the transport has still not been agreed.

The EnBW Group

Finance and strategy goal dimensions

Results of operations

Electricity sales increase, gas sales up due to full consolidation of VNG

Electricity sales of the EnBW Group (without Grids)

in billions of kWh	Sales		Renewable Energies		Generation and Trading		Total (without Grids)		Change in %
	2018	2017	2018	2017	2018	2017	2018	2017	
Retail and commercial customers (B2C)	14.9	15.0	0.0	0.0	0.0	0.0	14.9	15.0	-0.7
Business and industrial customers (B2B)	21.5	23.7	0.0	0.0	0.4	0.0	21.9	23.7	-7.6
Trade	0.9	1.0	2.4	2.2	96.7	80.1	100.0	83.3	20.0
Total	**37.3**	**39.7**	**2.4**	**2.2**	**97.1**	**80.1**	**136.8**	**122.0**	**12.1**

In the 2018 financial year, electricity sales of the EnBW Group were higher than in the previous year. It was possible to more than compensate for the falling sales in the business and industrial customer sector (B2B) due to the withdrawal from the B2B commodity business under the EnBW and Watt brands through the effects in trade of the full consolidation of VNG-Verbundnetz Gas in the second quarter of 2017 and an increase in trading activity. However, the effect of the trading activities on the earnings potential of the company is limited. In a persistently challenging competitive environment, electricity sales in business with retail and commercial customers (B2C) stood at the same level as in the previous year. Adjusted for the effects of the changes in the consolidated companies, electricity sales of the EnBW Group increased by 10.7%.

Gas sales of the EnBW Group (without Grids)

in billions of kWh	Sales		Renewable Energies		Generation and Trading		Total (without Grids)		Change in %
	2018	2017	2018	2017	2018	2017	2018	2017	
Retail and commercial customers (B2C)	17.1	14.4	0.0	0.0	0.0	0.0	17.1	14.4	18.8
Business and industrial customers (B2B)	39.2	42.6	0.0	0.0	105.3	51.1	144.5	93.7	54.2
Trade	0.2	0.3	0.1	0.0	166.4	141.7	166.7	142.0	17.4
Total	**56.5**	**57.3**	**0.1**	**0.0**	**271.7**	**192.8**	**328.3**	**250.1**	**31.3**

The gas sales of the EnBW Group increased significantly in 2018 compared to the same period of the previous year. Gas sales in the retail customer business (B2C) rose in comparison to the same period of the previous year, which was primarily due to the full consolidation of VNG in the second quarter of 2017 and a slight increase in the number of customers. Sales to business and industrial customers (B2B) also benefited from the full consolidation of VNG although this was offset by the withdrawal from the B2B commodity business under the EnBW and Watt brands. The level of trading activity was higher than in the previous year, which was mainly due to the full consolidation of VNG. However, the effect of the trading activities on the earnings potential of the company is limited. Adjusted for the effects of the changes in the consolidated companies, gas sales of the EnBW Group stood at almost the same level as in the previous year (+0.6%).

External revenue lower than previous year mainly due to first-time application of IFRS 15

External revenue of the EnBW Group by segment

in € million[1]	2018	2017	Change in %
Sales	7,061.4	7,354.3	-4.0
Grids	3,215.4	7,471.8	-57.0
Renewable Energies	477.5	507.5	-5.9
Generation and Trading	9,856.2	6,631.1	48.6
Other/Consolidation	7.0	9.3	-24.7
Total	**20,617.5**	**21,974.0**	**-6.2**

1 After deduction of electricity and energy taxes

Adjusted for the effects of the changes in the consolidated companies, external revenue fell by 12.9% or €3,048.3 million and was thus significantly lower than in the previous year. This fall is mainly attributable to the first-time application of IFRS 15 and the resulting net disclosure of EEG revenues. Further information can be found in the reporting on IFRS 15 in the notes to the consolidated financial statements (www.enbw.com/report2018-downloads).

Sales: In the 2018 financial year, external revenue in the Sales segment was below the figure in the previous year. Adjusted for the effects of the changes in the consolidated companies, this would have been a fall of 6.1% or €462.2 million. This was mainly due to lower sales volumes as a result of the withdrawal from the B2B commodity business under the EnBW and Watt brands.

Grids: External revenue in the Grids segment fell in 2018 compared to the previous year due to the application of IFRS 15 and the resulting net disclosure of EEG revenues. Adjusted for the effects of the changes in the consolidated companies, this would have been a fall of 57.5% or €4,344.9 million.

Renewable Energies: In the Renewable Energies segment, external revenue in the 2018 financial year was lower than in the previous year. The reason for this development was the fall in revenue caused mainly by lower generation at the offshore wind farms and run-of-river power plants due to the weather conditions. Adjusted for the effects of the changes in the consolidated companies, this would have been a fall of 8.4% or €43.8 million.

Generation and Trading: External revenue in the Generation and Trading segment increased significantly, which was primarily due to the full consolidation of VNG in the second quarter of 2017. In addition, the growth in trading activities contributed to the increase in revenue. Adjusted for the effects of the changes in the consolidated companies, this was an increase in sales of 22.4% or €1,805.0 million.

Material developments in the income statement

Revenue and the cost of materials were 6.2% (revenue) and 8.4% (cost of materials) lower than the levels in the previous year, which was mainly attributable to the application of IFRS 15 and the resulting net disclosure of revenues and the cost of materials. The net disclosures had no effect on the EBITDA. The balance from other operating income and other operating expenses fell from €1,587.2 million in the previous year to €-77.8 million in the reporting year. This decrease was influenced primarily by the reimbursement of the nuclear fuel rod tax (Glossary, p. 154) that was declared to be unconstitutional in June 2017, as well as the sale of 49.89% of the shares in each of EnBW Hohe See GmbH & Co. KG and EnBW Albatros GmbH & Co. KG and the revaluation of the remaining shares in the same period of the previous year. In contrast, the sale of VNG Norge AS and its subsidiary VNG Danmark ApS had a positive effect on earnings in the reporting year. The financial result fell significantly in 2018 in comparison to the previous year by €575.0 million to € 380.4 million (previous year: €194.6 million). This was primarily due to the reimbursement of interest relating to the legal proceedings for the nuclear fuel rod tax, as well as to a higher result from the sale of securities in the previous year. These securities were sold in the previous year in preparation for the payment to the "fund for the financing of the disposal of nuclear waste" (disposal fund). In addition, higher expenses from the market valuation of securities and the drop in the discount rate for nuclear provisions contributed to the fall in earnings. Overall, earnings before tax (EBT) stood at €596.3 million in the 2018 financial year, after €2,857.9 million in the previous year. The complete consolidated financial statements can be found at www.enbw.com/report2018-downloads.

Earnings

The Group net profit/loss attributable to the shareholders of EnBW AG fell from €2,054.1 million in 2017 by €1,719.9 million to €334.2 million in the reporting period. Earnings per share amounted to €1.23 in the 2018 financial year, compared to €7.58 in the previous year.

Adjusted earnings and non-operating result

The sum of the adjusted earnings figures and non-operating figures gives the figures on the income sheet. The non-operating result includes effects that either cannot be predicted or cannot be directly influenced by EnBW and as such are not relevant to the ongoing management of the company. The effects are presented and explained in the section "Non-operating EBITDA".

The business activities relevant to the ongoing management of the company are of particular importance for internal management and for the external communication of the current and future earnings potential of EnBW. We use the adjusted EBITDA – earnings before the investment and financial results, income taxes and amortisation, adjusted for non-operating effects – as the key reporting indicator for disclosing this information.

TOP Adjusted EBITDA and the TOP share of adjusted EBITDA accounted for by the segments

Adjusted EBITDA of the EnBW Group by segment

in € million	2018	2017	Change in %	Forecast 2018
Sales	270.6	330.0	-18.0	-5% to -15%
Grids	1,176.9	1,045.9	12.5	+5% to +15%
Renewable Energies[1]	297.7	331.7	-10.3	-10% to +5%
Generation and Trading	428.6	377.1	13.7	0% to -10%
Other/Consolidation	-16.3	28.3	–	–
Total	**2,157.5**	**2,113.0**	**2.1**	**0% to +5%**

1 The forecast for the Renewable Energies segment was adjusted during the year.

Share of adjusted EBITDA for the EnBW Group accounted for by the segments

in %	2018	2017	Forecast 2018
Sales	12.5	15.6	10% to 15%
Grids	54.5	49.5	45% to 60%
Renewable Energies[1]	13.8	15.7	10% to 15%
Generation and Trading	19.9	17.8	15% to 20%
Other/Consolidation	-0.7	1.4	–
Total	**100.0**	**100.0**	

1 The forecast for the Renewable Energies segment was adjusted during the year.

The adjusted EBITDA for the EnBW Group increased slightly in the 2018 financial year by 2.1% compared to the previous year. The growth in earnings was thus within the forecasted range for the 2018 financial year of between 0% and +5%. Adjusted for the effects of the changes in the consolidated companies, the adjusted EBITDA of the EnBW Group stood at the same level as in the previous year (-0.4%).

Sales: The adjusted EBITDA in the Sales segment decreased in the 2018 financial year by 18.0% in comparison to the previous year. The result was thus below our forecast of -5% to -15%. Adjusted for the effects of the changes in the consolidated companies, the decrease was 21.6%. The elimination of positive out-of-period effects such as the reversal of provisions, which benefited the result in the previous year, had a more significant effect on the adjusted EBITDA than expected. The share of the adjusted EBITDA for the Group accounted for by this segment was in line with our forecast (10% to 15%).

Grids: The adjusted EBITDA for the Grids segment grew in the 2018 financial year within the range of our forecast (+5% to +15%) by 12.5% compared to the previous year. Adjusted for the effects of the changes in the consolidated companies, the increase was 7.7%. The earnings performance in this segment was thus substantially impacted by the full consolidation of VNG in the second quarter of 2017. This development was also due to higher earnings from the use of the electricity grids. The share of the adjusted EBITDA for the Group accounted for by this segment increased in line with our forecast (45% to 60%) compared to the previous year.

Renewable Energies: The adjusted EBITDA in the Renewable Energies segment for the 2018 financial year was 10.3% below the value achieved in the same period of the previous year. The result was thus below our original forecast (+10% to +20%) but at the lower end of our adjusted forecast (-10% to +5%). Adjusted for the effects of the changes in the consolidated companies, the decrease was 11.3%. Poor wind conditions and low water levels had a heavy impact in 2018. The wind yields at our offshore wind farms were thus below the levels in the previous year. The earnings contribution from the run-of-river power plants was also below the level in the previous year. This development could not be offset by the increase in earnings from the onshore wind farms that have been in operation since the middle of 2017. The share of the adjusted EBITDA for the Group accounted for by this segment was in line with our adjusted forecast (10% to 15%) but below our original forecast (15% to 20%).

Generation and Trading: In the Generation and Trading segment, the adjusted EBITDA rose in the 2018 financial year by 13.7% compared to the previous year and was thus above our forecast of 0% to -10%. Adjusted for the effects of the changes in the consolidated companies, the increase was 16.4%. The elimination of the negative impacts in 2017 of the temporary shutdown of Block 2 of the Philippsburg nuclear power plant (KKP 2) due to damaged ventilation system brackets had a positive effect on earnings and compensated for the extension to the inspection of Block 2 of the Neckarwestheim nuclear power plant (GKN II) in 2018 and the negative impact on earnings that the weather conditions had on electricity generation. A positive development in comparison to the forecast was the unexpectedly high out-of-period earnings, which were due to the clarification of open issues relating to electricity procurement agreements. The share of the adjusted EBITDA for the Group accounted for by this segment increased slightly in line with our forecast (15% to 20%) compared to the previous year.

Development of non-operating EBITDA influenced by reimbursement of the nuclear fuel rod tax in previous year

Non-operating EBITDA of the EnBW Group

in € million	2018	2017	Change in %
Income/expenses relating to nuclear power	-132.1	1,278.2	–
Income from the reversals of other provisions	11.8	25.7	-54.1
Result from disposals	99.0	317.8	-72.0
Reversals of/additions to the provisions for onerous contracts relating to electricity procurement agreements	39.2	59.2	-33.8
Income from reversals of impairment losses	22.1	93.1	-76.3
Restructuring	-49.1	-70.0	29.9
Other non-operating result	-48.8	-64.6	-24.5
Non-operating EBITDA	**-67.9**	**1,639.4**	–

The non-operating EBITDA and the non-operating EBIT decreased significantly in 2018 compared to the previous year. This was influenced primarily by the reimbursement of the nuclear fuel rod tax, the sale of 49.89% of the shares in each of EnBW Hohe See GmbH & Co. KG and EnBW Albatros GmbH & Co. KG and the revaluation of the remaining shares in the same period of the previous year. In addition, there were reversals of impairment losses on power plants in the previous year. In contrast, the sale of VNG Norge AS and its subsidiary VNG Danmark ApS had a positive effect on earnings in the reporting year.

Fall in Group net profit also influenced by reimbursement of the nuclear fuel rod tax in previous year

Group net profit of the EnBW Group

in € million	2018			2017		
	Total	Non-operating	Adjusted	Total	Non-operating	Adjusted
EBITDA	**2,089.6**	**-67.9**	**2,157.5**	**3,752.4**	**1,639.4**	**2,113.0**
Amortisation and depreciation	-1,213.8	-13.8	-1,200.0	-1,248.4	-134.2	-1,114.2
EBIT	**875.8**	**-81.7**	**957.5**	**2,504.0**	**1,505.2**	**998.8**
Investment result	100.9	-50.6	151.5	159.3	4.1	155.2
Financial result	-380.4	-18.6	-361.8	194.6	244.6	-50.0
EBT	**596.3**	**-150.9**	**747.2**	**2,857.9**	**1,753.9**	**1,104.0**
Income tax	-128.7	51.9	-180.6	-681.6	-509.5	-172.1
Group net profit/loss	**467.6**	**-99.0**	**566.6**	**2,176.3**	**1,244.4**	**931.9**
of which profit/loss shares attributable to non-controlling interests	(133.4)	(5.1)	(128.3)	(122.2)	(-16.4)	(138.6)
of which profit/loss shares attributable to the shareholders of EnBW AG	(334.2)	(-104.1)	(438.3)	(2,054.1)	(1,260.8)	(793.3)

The fall in the investment result was mainly attributable to an impairment of our Turkish investment in the reporting period. The significant decrease in the financial result in comparison to the previous year was primarily due to the reimbursement of interest relating to the legal proceedings for the nuclear fuel rod tax (Glossary, p. 154), as well as to a higher result from the sale of securities in the previous year. These securities were sold in the previous year in preparation for the payment to the "fund for the financing of the disposal of nuclear waste" (disposal fund). The EBT stood at €596.3 million and was thus below our expectations of between €800 million and €900 million. The main reasons for this deviation from the forecast were valuation effects from derivatives and the development of the discount rate for nuclear provisions.

Financial position

Financial management of EnBW

Basis and objectives

Financial management is responsible for securing the existing financial assets of the EnBW Group and their development, for the optimisation of financing, as well as for guaranteeing a sufficient level of liquidity reserves. This ensures that the Group is able to meet its payment obligations at all times without restriction. The treasury guidelines (Glossary, p. 155) of the EnBW Group define the financial transactions permitted by the Board of Management of EnBW and the specified scope within which they may be carried out. The guidelines are applicable to all companies that are either consolidated in full or with which EnBW AG has a profit and loss transfer agreement. The guidelines also act as basic principles for all other companies. The centralised financial management system serves to minimise risks, provide transparency and optimise costs.

In the operating business, derivatives (Glossary, p. 153) are generally deployed for hedging purposes only; for example, for forward contracts for electricity and primary energy source trading. This also applies for foreign exchange and interest rate derivatives. Propriety trading is only permitted within narrow, clearly defined limits.

Another important aspect of financial management is to manage financial assets (asset management) in order to cover the corresponding pension and nuclear obligations.

Treasury

In general, the treasury (Glossary, p. 155) controls all processes in all companies that are consolidated in full, or with which EnBW AG has a profit and loss transfer agreement. Liquidity management is based on a system-aided rolling liquidity planning for the scope of validity defined above. The treasury is also responsible for the central management of credit lines and bank guarantees, the issuing of guarantees and letters of comfort, as well as interest rate risk and currency management.

Interest rate risk and currency management

Interest rate risk and currency management involves the management and monitoring of interest-bearing and interest-sensitive assets and liabilities. The consolidated companies regularly report on the existing risk position via the system-aided rolling liquidity planning. An interest rate risk strategy is devised based on an analysis conducted every quarter on an aggregated basis. The purpose is to limit the impact of fluctuations in interest rates and interest rate risks on the results of operations and net assets.

The interest rates on the financial liabilities of the EnBW Group are predominantly fixed. We use interest rate derivatives to keep the relationship between fixed and variable interest rates within predefined limits in order to optimise the interest earnings of EnBW. The potential risk is determined on the basis of current interest rates and possible changes in these interest rates.

Generally, currency positions resulting from operations are closed by appropriate forward exchange contracts. Overall, currency fluctuations from operating activities do not have any major effect on the operating result of EnBW. Foreign exchange risks are monitored on a case-by-case basis within the framework of the currency management system. Details on the risk management system are presented in note 24 of the notes to the consolidated financial statements at www.enbw.com/report2018-downloads.

Asset management

Our aim is to cover the Group's pension and nuclear provisions within an economically feasible period of time by means of appropriate financial assets. EnBW uses an asset liability management model (ALM model) (Glossary, p. 152) based on cash flows to determine the effects on the balance sheet, income statement and cash flow statement over the next 30 years. Alongside the anticipated return on financial assets, the actuarial valuations of pension provisions and sector-specific appraisals by external experts on costs for nuclear decommissioning and disposal are taken into account. The aim of this model is to limit the impact the utilisation of the pension and nuclear obligations may have on the operating business. Accordingly, funds are also taken from the financial assets for this purpose. This model also allows simulations of various alternative scenarios. As of 31 December 2018, the dedicated financial assets (Glossary, p. 152) for pension and nuclear provisions totalled €6,279.8 million (previous year adjusted: €6,273.9 million). Alongside the dedicated financial assets, there are plan assets to cover certain pension obligations with a market value of €987.8 million as of 31 December 2018 (previous year adjusted: €1,047.3 million).

We strive to reach the defined investment targets with minimum risk. We also further optimised the risk/return profile of the financial assets in 2018. The main part of the dedicated financial assets is distributed as investments across nine asset classes. The financial assets are bundled in two master funds with the following investment targets:

- Risk-optimised investments, with a performance in line with market trends
- Consideration of the effects on the balance sheet and income statement
- Broad diversification of the asset classes
- Reduction of costs and simplification of administrative processes

Financing facilities

In addition to the Group's internal financing capabilities from the adjusted retained cash flow of €1,199.1 million in 2018 (previous year: €1,529.5 million) and its own funds, the EnBW Group had the following instruments at its disposal to cover its overall financing needs (as of 31 December 2018):

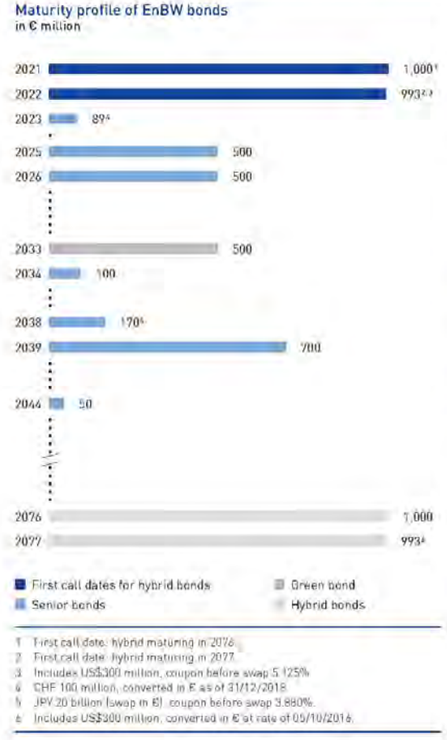
- Debt Issuance Programme (DIP, Glossary, p. 152), via which bonds are issued: €2.6 billion of €7.0 billion has been drawn
- Hybrid bonds: €2.0 billion
- Commercial paper (CP) programme (Glossary, p. 152): €0.3 billion of €2.0 billion has been drawn
- Syndicated credit line: €1.5 billion undrawn with a term until 2021
- Bilateral free credit lines: €1.1 billion
- Project financing and low-interest loans from the European Investment Bank (EIB)

Established issuer on the debt capital market

EnBW has sufficient and flexible access to the capital market at all times. The EnBW bonds continue to have a well-balanced maturity profile. As part of its financing strategy, EnBW constantly assesses capital market trends with regard to the current interest rate environment and to any potentially favourable refinancing costs.

The CHF 100 million bond that was due for repayment was repaid on 12 July 2018. A senior bond with a volume of €750 million that was due for repayment on 20 November was also repaid. No refinancing was required in either case.

Maturity profile of EnBW bonds
in € million



1 First call date: hybrid maturing in 2076
2 First call date: hybrid maturing in 2077
3 Includes US$300 million, coupon before swap 5.125%
4 CHF 100 million, converted in € as of 31/12/2018
5 JPY 20 billion (swap in €), coupon before swap 3.880%
6 Includes US$300 million, converted in € at rate of 05/10/2016

Documentation of short-term and long-term borrowings on the capital market under the established DIP and CP programmes of EnBW, as well as all other credit documentation with banks (e.g. syndicated lines of credit) includes internationally standardised clauses. The issuing of a negative pledge, as well as a pari passu clause (Glossary, p. 154), to all creditors forms a key element of the financing policy of EnBW. The use of undrawn credit lines is not subject to restrictions.

Details on financial liabilities are presented in note 21 and explanations on other financial commitments are presented in note 25 of the notes to the consolidated financial statements at www.enbw.com/report2018-downloads.

Green bond issued by EnBW *

EnBW published its Green Financing Framework on 17 October 2018 and issued its first green bond (Glossary, p. 153) with a volume of €500 million on 31 October 2018. The bond has a coupon of 1.875% and a term of 15 years. In contrast to conventional corporate bonds, the proceeds from a green bond must be used exclusively to finance climate-friendly projects. 93% of the proceeds from the first green bond issued by EnBW will be allocated to wind power projects, while 5% will be used for photovoltaic projects and 2% for electromobility projects. This form of financing is thus in line with the corporate strategy of repositioning the business portfolio with a focus on renewable energies and smart infrastructure solutions.

Use of the funds from the green bond for renewable energies

	Use of funds in € million	Emissions avoided t CO2eq[1]
Offshore wind	227.45	-[2]
Onshore wind	234.42	170,818
Photovoltaics	26.50	14,032
Total for renewable energies	**488.37**	**184,850**

1 Source: German Environment Agency: Emission Balance of Renewable Energy Sources in 2017 (as of October 2018)
2 Projects still under construction

Use of the funds from the green bond for electromobility

	Use of funds in € million	Number of locations	Number of charging processes
Expansion of quick-charging infrastructure	8.05	123[1]	38,327
Total	**496.42**		

1 89 locations on Germany's motorways

* The information on the green bond issued by EnBW is not part of the audited management report.

Allocation of the green bond

	Use of funds in € million	Net proceeds in € million	Allocation of funds in %
Green bond (XS1901055472)	496.42	496.42	100.0

Through sustainable finance, companies support the stability and future viability of financial markets and make an important contribution to financing global transformation processes. The activities of EnBW in the area of sustainable finance underline the fact that the company takes into account the social and ecological impacts of its business activities in the development of business models and specifically examines the medium and long-term opportunities and risks involved. As well as financial performance indicators, the company thus also uses sustainability indicators as a basis for taking capital expenditure and investment decisions.

Further information on the green bond, including its contribution to the non-financial key performance indicators of EnBW and to the selected sustainability goals of the United Nations (United Nations Sustainable Development Goals (SDGs) – SDG 7 (affordable and clean energy), SDG 9 (industry, innovation and infrastructure), SDG 11 (sustainable cities and communities), SDG 13 (climate action), can be found at www.enbw.com/green-bond.

Rating and rating trends

EnBW aims to maintain a solid investment-grade rating (Glossary, p. 154). By limiting the cash-relevant net investment to the adjusted retained cash flow, measured by the internal financing capability, EnBW manages the level of net financial debt. The company thus maintains its high level of financial discipline, irrespective of the interest rate-related volatility of the pension and nuclear provisions (p. 72). EnBW ensures the timely coverage of the pension and nuclear obligations (p. 84) using an asset liability management model (Glossary, p. 152). The impact that the utilisation of the pension and nuclear obligations may have on the operating business is limited to €300 million (plus an inflation supplement) a year using an ongoing contribution from the financial assets. If the provisions are fully covered by the financial assets, no further funds will be taken from operating cash flow as part of the model.

With a solid investment-grade rating (Glossary, p. 154), we want to:

- ensure unrestricted access to capital markets
- offer reliable opportunities for financing partners
- be regarded as a dependable business partner in our trading activities
- achieve the lowest possible capital costs
- implement an appropriate number of investment projects and thereby maintain the future viability of the company

Overview of the ratings for EnBW – rating/outlook

	2018	2017	2016	2015	2014
Moody's	A3/stable	Baa1/stable	A3/negative	A3/negative	A3/negative
Standard & Poor's	A-/stable	A-/stable	A-/negative	A-/stable	A-/stable
Fitch	A-/stable	A-/stable	A-/stable	A-/stable	A-/stable

The rating agency Moody's re-evaluated EnBW in June 2018 and upgraded its rating from Baa1 to A3. EnBW has thus now received A-grade ratings from all three rating agencies. The reason given by Moody's for the upgrade was above all the high financial discipline of EnBW, especially with regards to the reduction in net debt that was achieved more quickly than expected and the financing of growth investment using its internal financing capability. The increasing proportion of low-risk activities in the regulated grid business and the expertise acquired by EnBW in the area of renewable energies over the past few years were also positively evaluated. Moody's anticipates that EnBW will continue to rigorously implement its 2020 strategy. In its regular update on 24 July 2018, Standard & Poor's (S&P) confirmed its EnBW rating of A- with a stable outlook. Fitch also confirmed its EnBW rating of A-/ stable on 28 September 2018.

Assessment by the rating agencies

Moody's (12/06/2018)	Standard & Poor's (24/07/2018)	Fitch (28/09/2018)
Leadership position as a vertically integrated utility within Baden-Württemberg	Solid regional competitive position and increasing foothold in national gas distribution	Continued evolution towards a more regulated and contracted business profile
Around 50% of EBITDA from low risk regulated distribution and transmission activities and growing share of renewables under contracts, as EnBW continues to invest in line with its 2020 strategy	Increased share of operating income from the segments Grids and Renewable Energies, but still significant exposure to volatile and commodity-driven wholesale power prices	High earnings visibility in grids and renewables partly offset by residual nuclear decommissioning risk; payment of €4.8 billion for transferring responsibility for nuclear waste storage has substantially reduced these risk
Difficult operating environment in Germany for conventional generation and increasingly challenging environment in retail markets	Considerable progress made in business repositioning strategy	Average forecast credit metrics are generally stronger than peers, with some exceptions with respect to funds from operations (FFO) fixed charge cover
Certain execution risks relating to a large investment programme	Well managed funding of nuclear waste-related liabilities, without major disruptions to its strategy or changes to the capital structure	If the share of regulated EBITDA exceeds 50% on a sustained basis, Fitch may apply a one-notch uplift to the senior unsecured rating
Balanced financial policies and track record in implementing measures to shore up its financial profile	Prudent financial policy underpinned by utilization of nuclear tax refund for capex and deleveraging	
Strong support due to stable shareholder structure		

Investment analysis

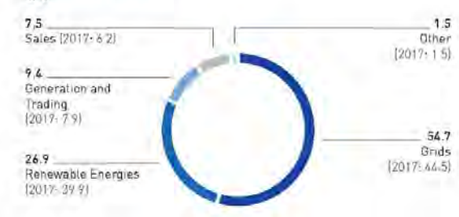
Net cash investment of the EnBW Group

in € million[1]	2018	2017	Change in %
Investments in growth projects[2,3]	1,323.9	1,324.2	0.0
Investments in existing projects	446.0	446.1	0.0
Total investments	**1,769.9**	**1,770.3**	**0.0**
Divestitures[4]	-371.3	-298.5	24.4
Participation models	51.9	61.9	-16.2
Other disposals and subsidies	-163.4	-166.6	-1.9
Total divestitures	**-482.8**	**-403.2**	**19.7**
Net (cash) investment	**1,287.1**	**1,367.1**	**-5.9**

1 Excluding investments held as financial assets.
2 Does not include cash and cash equivalents acquired with the acquisition of fully consolidated companies. These amounted to €0.4 million in the reporting period (previous year: €0.0 million).
3 In the same period of the previous year, this included cash and cash equivalents of €51.0 million relinquished with the sale of the shares in EnBW Hohe See GmbH & Co. KG and cash and cash equivalents of €4.8 million relinquished with the sale of the shares in EnBW Albatros GmbH & Co. KG, because they will be used for future investments for the realisation of both offshore wind farms.
4 Does not include cash and cash equivalents relinquished with the sale of fully consolidated companies. These amounted to €61.5 million in the reporting period (previous year: €97.8 million).

Investment by segment

in %



Investment by the EnBW Group in 2018 was at the same level as in the previous year. In particular, capital expenditure on property, plant and equipment in the Grids segment increased, while it decreased in the Renewable Energies segment. Around 74.8% of overall gross investment was attributable to growth projects; the proportion of investments in existing facilities stood at 25.2%.

In the reporting year, €132.4 million was invested in strengthening the **Sales** segment. Investment in this segment was thus slightly above the level in the previous year (€110.6 million).

Investment in the **Grids** segment stood at €967.4 million, compared to €787.5 million in the previous year. It was primarily used for the expansion of the electricity grids. The increase in comparison to the previous year was primarily due to the construction of the EUGAL gas pipeline and investment in the areas of electromobility and smart grids.

Investment in the **Renewable Energies** segment of €476.0 million was lower than the figure in the previous year (previous year: €706.4 million). The reason for this development was the strong expansion of onshore wind power plants in 2017. In 2018, onshore wind farms were acquired, in particular, in Sweden.

Investment in the **Generation and Trading** segment stood at €166.5 million in 2018. In the same period of the previous year, investment in this segment stood at €140.2 million. The main reasons for this increase were investment in the exploration and production business of VNG and the modernisation of the combined heat and power plant in Stuttgart-Gaisburg – including switching the fuel over to gas – to guarantee the supply of district heating for the greater Stuttgart area.

Other investments of €27.6 million were slightly above the level in the previous year (€25.6 million).

Divestitures were higher than the level in the previous year.

Divestitures increased in 2018 compared to the same period of the previous year. This was primarily due to the sale of VNG Norge AS and its subsidiary VNG Danmark ApS. In the previous year, they mainly included the sale of 49.89% of the shares in each of EnBW Hohe See GmbH & Co. KG and EnBW Albatros GmbH & Co. KG.

The divestitures from participation models mainly contain payments due to capital reductions in non-controlling interests of €51.8 million (previous year: €55.0 million).

Other disposals and subsidies were at the same level as in the previous year.

Capital commitments for the acquisition of intangible assets and property, plant and equipment amounted to €1,142.7 million as of 31 December 2018 (previous year: €829.1 million). Commitments for the acquisition of companies totalled €476.1 million (previous year: €454.1 million). The capital commitments will be financed from the adjusted retained cash flow in subsequent years.

Investment decisions will take climate goals into account to a greater extent in the future. In this context, the investment guidelines have been adapted in the 2018 financial year: For significant investment projects, their influence on the environmental and climate protection targets and figures – in the sense of the TCFD recommendations [Glossary, p. 155] – will be illustrated in the future. This additional information will act as the basis for approval by the investment committee of the Board of Management.

Liquidity analysis

Retained cash flow of the EnBW Group

in € million	2018	2017	Change in %
EBITDA	2,089.6	3,752.4	-44.3
Changes in provisions	-394.6	-472.3	-16.5
Non-cash-relevant expenses/income	-116.0	-385.9	-69.9
Income tax paid/received	-270.7	81.1	–
Interest and dividends received	284.6	591.7	-51.9
Interest paid for financing activities	-247.0	-425.6	-42.0
Dedicated financial assets contribution	-34.0	-6.4	–
Funds from operations (FFO)	**1,311.9**	**3,135.0**	**-58.2**
Dividends paid	-312.8	-84.7	–
Retained cash flow	**999.1**	**3,050.3**	**-67.2**

Funds from operations (FFO) fell by more than half in comparison to the previous year. This fall was primarily attributable to the reimbursement of the nuclear fuel rod tax in 2017 [Glossary, p. 154]. In addition, there were income tax payments in the reporting year compared to income tax refunds in the previous year. Furthermore, interest and dividends received fell.

The lower FFO and higher dividends paid in 2018 thus led to a decrease in the retained cash flow.

The retained cash flow reflects the internal financing capability of EnBW after all stakeholder needs have been settled. It is available to the company for investment without the need to raise additional debt.

Internal financing capability of the EnBW Group

	2018	2017	Change in %
Adjusted retained cash flow in € million [1]	1,199.1	1,529.5	-21.6
Net (cash) investment in € million	1,287.1	1,367.1	-5.9
Internal financing capability in %	**93.2**	**111.9**	**-16.7**

1 Adjusted for the effects from the reimbursement of the nuclear fuel rod tax by €200.0 million (previous year: €-1,520.8 million).

We have translated the retained cash flow into the adjusted retained cash flow, which eliminates the reimbursement of the nuclear fuel rod tax. In the 2017 financial year, this led to a reduction in adjusted retained cash flow compared to retained cash flow and will lead to an increase of €685.0 million in the period from 2018 to 2020 (nuclear fuel rod tax adjusted for the debt repayment). The reimbursement of the nuclear fuel rod tax of €1,520.8 million in the 2017 financial year was used by EnBW for the debt repayment in 2018 of €835.8 million and for investments in the amount of €200.0 million. We anticipate that the remaining amount will be distributed on a straight line basis in the period 2019 to 2020.

Due to the decrease in adjusted retained cash flow in the reporting year compared to 2017 and only a slight decrease in net investment compared to the previous year, the internal financing capability fell. As a result of one-time tax payments, the adjusted retained cash flow was below the forecasted level, which meant that the value for internal financing capability was slightly below the target value of ≥ 100% in the reporting year.

The internal financing capability is the key performance indicator for the Group's ability to finance its activities internally.

Free cash flow of the EnBW Group

in € million	2018	2017	Change in %
Funds from operations (FFO)	1,311.9	3,135.0	-58.2
Change in assets and liabilities from operating activities	-460.7	-4,671.4	-89.7
Capital expenditure on intangible assets and property, plant and equipment	-1,369.5	-1,419.2	-3.5
Disposals of intangible assets and property, plant and equipment	77.3	52.8	46.4
Cash received from subsidies for construction costs and investments, and tax refunds from recognised exploration expenditure	86.1	113.8	-24.3
Free cash flow	**-374.9**	**-2,789.0**	**-86.6**

Free cash flow increased significantly compared to the same period of the previous year by €2,414.1 million. The considerable decrease in FFO was more than compensated for by the clear reduction in the net balance of assets and liabilities from operating activities. In the comparative period, this item included the payment to the disposal fund.

Condensed cash flow statement of the EnBW Group

in € million	2018	2017	Change in %
Cash flow from operating activities	827.6	-1,696.1	–
Cash flow from investing activities	-895.8	2,160.7	–
Cash flow from financing activities	-907.3	-1,541.3	41.1
Net change in cash and cash equivalents	**-975.5**	**-1,076.7**	**9.4**
Change in cash and cash equivalents due to changes in the consolidated companies	6.6	300.3	-97.8
Net foreign exchange difference	5.5	-1.9	–
Risk provisions	0.2	0.0	–
Change in cash and cash equivalents	**-963.2**	**-778.3**	**23.8**

The substantial increase in cash flow from operating activities in comparison to the previous year was mainly due to the two effects from the previous year of the reimbursement of the nuclear fuel rod tax and the payment to the disposal fund. In addition, there were income tax payments in the reporting year compared to income tax refunds in the previous year.

In 2018, cash flow from investing activities returned an outflow of cash, while there was a significantly higher inflow of cash in the previous year. This inflow of cash in the previous year was due primarily to higher sales of securities to finance the payment made to the disposal fund in July 2017.

The cash outflow from financing activities decreased significantly in comparison to the previous year: A hybrid bond was repaid in 2017; in 2018 the green bond was issued and the commercial paper (CP) programme [Glossary, p. 152] was utilised, while in contrast there were planned repayments on two bonds and dividends were once again distributed to the shareholders of EnBW AG.

The solvency of the EnBW Group was ensured at all times throughout the 2018 financial year thanks to the company's available liquidity and its internal financing capability, as well as external sources available for financing. The company's future solvency is secured by its solid financial position [p. 84 ff.].

Net assets

Condensed balance sheet of the EnBW Group

in € million	31/12/2018	31/12/2017	Change in %
Assets			
Non-current assets	26,746.0	26,766.6	-0.1
of which intangible assets	(1,748.7)	(1,905.9)	-8.2
of which property, plant and equipment	(15,867.5)	(15,597.4)	1.7
of which entities accounted for using the equity method	(1,600.2)	(1,388.6)	15.2
of which other financial assets	(5,426.5)	(5,985.7)	-9.3
of which deferred taxes	(1,059.3)	(956.4)	10.8
Current assets	12,520.7	12,015.3	4.2
Assets held for sale	342.3	3.0	–
	39,609.0	**38,784.9**	**2.1**
Equity and liabilities			
Equity	6,273.3	5,862.9	7.0
Non-current liabilities	22,036.9	21,919.7	0.5
of which provisions	(13,246.0)	(13,124.5)	0.9
of which deferred taxes	(774.8)	(799.4)	-3.1
of which financial liabilities	(6,341.4)	(5,952.0)	6.5
Current liabilities	11,277.6	11,002.3	2.5
of which provisions	(1,549.9)	(1,598.7)	-3.1
of which financial liabilities	(654.8)	(1,306.8)	-49.9
Liabilities directly associated with assets classified as held for sale	21.2	0.0	–
	39,609.0	**38,784.9**	**2.1**

As of 31 December 2018, the total assets held by the EnBW Group were 2.1% higher than the level at the end of the previous year. Non-current assets were only slightly below the level in the previous year. The increase in property, plant and equipment is due to capital expenditure, which was offset to some extent by ongoing impairments. The increase in entities accounted for using the equity method was mainly the result of a capital increase. The fall in other financial assets was due to the securities. This was primarily attributable to the reclassification of the 6% shareholding in EWE as assets held for sale and a reclassification due to a change in maturity. Current assets increased by €505.4 million, which was mainly due to an increase in derivatives. In addition, the rise in current assets was also contributed to by the increase in securities because of reclassifications due to changes in maturity and an increase in gas stocks. In contrast, cash and cash equivalents fell, which was mainly attributable to cash payments for investments. The increase in assets held for sale by €339.3 million was primarily attributable to the 6% of the shares in EWE, which were reclassified due to EnBW's right from 1 July 2019 to sell the shares to EWE Verband with an associated obligation for EWE Verband to purchase them.

The equity held by the EnBW Group increased by €410.4 million as of the reporting date of 31 December 2018. This was due mainly to the increase in revenue reserves as a result of the first-time application of the new IFRS standards. This was compensated for to some extent by the lower earnings compared to the previous year. The first-time application of IFRS 9 also led to a fall in other comprehensive income. The equity ratio increased from 15.1% at the end of 2017 to 15.8% on the reporting date as a result. Non-current liabilities increased by

€117.2 million. The increase in financial liabilities was primarily due to the issuing of the green bond. Other liabilities and subsidies fell due to the first-time application of IFRS 15 in the 2018 financial year. In contrast, the derivatives increased. Current liabilities increased by €275.3 million, driven by the derivatives. The decrease in financial liabilities is due to repayments on two bonds. This was offset to some extent by short-term financing on the capital market under the commercial paper (CP) programme [Glossary, p. 152] in the amount of €250 million as of 31 December 2018.

Net debt

As of 31 December 2018, net debt increased significantly by €1,168.3 million compared to the figure posted at the end of 2017. Net financial debt increased by €820.6 million, which was due to the payments for initial margins, filling the gas stores at the end of the year and the investment expenditure which, excluding the effect from the nuclear fuel rod tax, totalled more than the income from the retained cash flow. The increase in net debt relating to pension and nuclear obligations was primarily due to a rise in the rate of increase in prices from 1.7% to 2.4% and the fall in the discount rate for the nuclear provisions from 0.72% to 0.59%. Updating the Heubeck tables with respect to assumptions about average life expectancies also had a negative effect on the pension provisions.

The coverage ratio [Glossary, p. 152] describes the dedicated financial assets [Glossary, p. 152] in relation to the net pension and nuclear obligations. As of 31 December 2018, this ratio stood at 51.8%, which was around the same level as in the previous year (adjusted: 53.3%). Within the scope of its ALM model [Glossary, p. 152], EnBW is still in a position to cover its future cash outflows for pension and nuclear provisions without burdening the cash flow from operating activities to an above-average extent.

Net debt of the EnBW Group

in € million[1]	31/12/2018	31/12/2017	Change in %
Cash and cash equivalents available to the operating business	-1,954.0	-2,954.7	-33.9
Current financial assets available to the operating business	-200.6	-277.0	-27.6
Long-term securities available to the operating business	0.0	-4.3	-100.0
Bonds	4,869.4	4,934.3	-1.3
Liabilities to banks	1,482.8	1,705.6	-13.1
Other financial liabilities	644.0	618.9	4.1
Valuation effects from interest-induced hedging transactions	-88.8	-96.4	-7.9
Restatement of 50% of the nominal amount of the hybrid bonds[2]	-996.3	-996.3	0.0
Other	-18.1	-12.3	47.2
Net financial debt	**3,738.4**	**2,917.8**	**28.1**
Provisions for pensions and similar obligations[3]	6,550.9	6,341.2	3.3
Provisions relating to nuclear power	5,848.2	5,802.7	0.8
Liabilities relating to nuclear power	63.3	0.0	–
Receivables relating to nuclear obligations	-334.4	-369.5	-9.5
Net pension and nuclear obligations	**12,128.0**	**11,774.4**	**3.0**
Long-term securities and loans to cover the pension and nuclear obligations[4]	-4,864.4	-5,487.6	-11.4
Cash and cash equivalents to cover the pension and nuclear obligations	-295.4	-258.6	14.2
Current financial assets to cover the pension and nuclear obligations	-569.1	-307.2	85.3
Surplus cover from benefit entitlements	-208.8	-179.3	16.5
Long-term securities to cover the pension and nuclear obligations directly associated with assets classified as held for sale	-298.9	0.0	–
Other	-43.2	-41.2	4.9
Dedicated financial assets	**-6,279.8**	**-6,273.9**	**0.1**
Net debt relating to pension and nuclear obligations	**5,848.2**	**5,500.5**	**6.3**
Net debt	**9,586.6**	**8,418.3**	**13.9**

1 The figures for the previous year have been restated.
2 The structural characteristics of our hybrid bonds meet the criteria for half of the bond to be classified as equity, and half as debt, by the rating agencies Moody's and Standard & Poor's.
3 Less the market value of the plan assets of €987.8 million (31/12/2017: €1,047.3 million).
4 Includes equity investments held as financial assets.

ROCE and value added

The cost of capital before tax represents the minimum return on average capital employed (calculated on the basis of the respective quarterly figures for the reporting year and the year-end figure for the previous year). Positive value is added when the return on capital employed (ROCE) exceeds the cost of capital. The cost of capital is determined based on the weighted average cost of equity and debt together. The value of equity is based here on a market valuation and thus deviates from the value recognised in the balance sheet. The cost of equity is based on the return of a risk-free investment and a company-specific risk premium. The latter is calculated as the difference between a risk-free investment and the return for the overall market, weighted with a company-specific business field risk. The terms according to which the EnBW Group can raise long-term debt are used to determine the cost of debt.

There are various factors that influence value added. The level of ROCE and value added depend not only on the development of the operating result but above all on the invested capital. Large-scale investments tend to significantly increase the capital employed in the early years, while the effect on income that boosts value, however, only filters through over a lengthier period of time, often long after the investments were initially made. This is especially true of capital expenditure on property, plant and equipment relating to the construction of new power plants, which do not have any positive effect on the operating result of the Group until after they are commissioned. Capital expenditure on power plants, on the other hand, is already taken into account in the capital employed during the construction phase. In a comparison of individual years, the development of ROCE and value added is, to a certain extent, cyclical in nature, depending on the investment volume. This effect is therefore inherent in the system and results in lower ROCE in phases of strong growth or phases of investment.

Value added to the EnBW Group for 2018 by segment

	Sales	Grids	Renewable Energies	Generation and Trading	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result[1] in € million	220.3	768.4	123.7	-24.2	-46.6	1,041.6
Average capital employed in € million	1,037.0	7,019.8	3,667.4	2,139.1	2,190.0	16,053.3
ROCE in %	**21.2**	**10.9**	**3.4**	**-1.1**	**–**	**6.5**
Weighted average cost of capital before tax in %	7.7	5.3	6.1	8.0	–	6.3
Value added in € million	**140.0**	**393.1**	**-99.0**	**-194.7**	**–**	**32.1**

1 Investment result of €59.4 million, adjusted for taxes (investment result/0.706 - investment result; with 0.706 = 1 - tax rate 29.4%). Does not include impairment losses and reversals to impairment losses on investments, the result from the sale of equity investments, the share of the result from entities accounted for using the equity method not relevant to the ongoing management of the company and the result from equity investments held as financial assets.

Value added to the EnBW Group for 2017 by segment[1]

	Sales	Grids	Renewable Energies	Generation and Trading	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result[2] in € million	262.8	686.8	164.9	-27.0	21.2	1,108.7
Average capital employed in € million	836.8	5,919.2	3,276.9	2,242.4	2,844.6	15,119.9
ROCE in %	**31.4**	**11.6**	**5.0**	**-1.2**	**–**	**7.3**
Weighted average cost of capital before tax in %	7.7	5.4	6.1	8.0	–	6.3
Value added in € million	**198.3**	**367.0**	**-36.0**	**-206.3**	**–**	**151.2**

1 The figures for the previous year have been restated.
2 Investment result of €77.4 million, adjusted for taxes (investment result/0.706 - investment result; with 0.706 = 1 - tax rate 29.4%). Does not include impairment losses and reversals to impairment losses on investments, the result from the sale of equity investments, the share of the result from entities accounted for using the equity method not relevant to the ongoing management of the company and the result from equity investments held as financial assets.

The value added generated by the EnBW Group fell in the 2018 financial year compared to the previous year to €32.1 million. The adjusted EBIT including the adjusted investment result fell slightly, while the average capital employed rose. The risk-adjusted weighted average cost of capital remained unchanged compared to the previous year at 6.3%. The ROCE of 6.5% was within the range of our forecast for the 2018 financial year (forecast 2018: 6.3% to 7.0%).

Sales: Value added in the Sales segment decreased in 2018 by €58.3 million. This was mainly because of the increase in average capital employed due to, amongst other things, the full year consolidation of VNG and investment in the solutions and contracting business. In addition, the lower adjusted EBIT including the adjusted investment result contributed to the fall in value added.

Grids: Value added in the Grids segment increased slightly to €393.1 million in comparison to 2017. Both the adjusted EBIT including the adjusted investment result and also the capital employed were above the figures in the previous year. The substantial increase in capital employed was primarily attributable to the full year consolidation of VNG and investment in the transmission and distribution grids.

Renewable energies: Value added in the Renewable Energies segment fell in comparison to the previous year to €-99.0 million. The adjusted EBIT including the adjusted investment result decreased to €123.7 million. In contrast, investments in the expansion of onshore and offshore wind power led to an increase in the capital base in the reporting year, as was also the case in 2017.

Generation and Trading: Value added in the Generation and Trading segment was slightly above the level in 2017 at €-194.7 million. This was due, on the one hand, to the slight increase in adjusted EBIT including the adjusted investment result, and on the other hand, to the average capital employed in the reporting year remaining at approximately the same level as in the previous year.

Performance indicators relevant to remuneration

The performance indicators relevant to remuneration are derived as follows:

EBT relevant to remuneration

in € million	2018	2017
EBT	596.3	2,857.9
Less outstanding items for derivatives allocated under trading within EBITDA	-4.1	-12.9
Less the measurement of financial assets and outstanding items for derivatives allocated under trading within the financial result	38.8	-34.2
EBT relevant to remuneration	**631.0**	**2,810.8**
Less changes to the inflation rate and discount rate for nuclear provisions	133.3	–
EBT relevant to remuneration according to the new regulations	**764.3**	**–**

Funds from operations (FFO) relevant to remuneration

in € million	2018	2017
Funds from operations (FFO)	1,311.9	3,135.0
Less income tax paid/received	270.7	-81.1
Funds from operations (FFO) relevant to remuneration	**1,582.6**	**3,053.9**

Intangible assets and property, plant and equipment (net) relevant to remuneration

in € million	2018	2017
Intangible assets	1,746.7	1,905.9
Property, plant and equipment	15,867.5	15,597.4
Investment properties	31.6	50.3
Investment cost subsidies	-7.7	-6.5
Construction cost subsidies	-876.8	-1,383.6
Intangible assets and property, plant and equipment (net)	**16,763.3**	**16,161.5**
Average intangible assets and property, plant and equipment (net)[1]	**16,371.6**	**15,113.9**

1 Average calculation based on the respective quarterly values for the reporting year and the previous year.

ROA (return on assets) relevant to remuneration

in € million	2018	2017
EBIT	875.8	2,504.0
Less outstanding items for derivatives allocated under trading within EBITDA	-4.1	-12.9
EBIT relevant to remuneration	**871.7**	**2,491.1**
Average intangible assets and property, plant and equipment (net)	16,371.6	15,113.9
ROA (return on assets) relevant to remuneration in %	**5.3**	**16.5**

The remuneration of the members of the Board of Management is described in full in the remuneration report (p. 124 ff.).

Customers and society goal dimension

Reputation

A strong reputation is an important factor for the sustainable success of a company. The good social reputation of a company reflects the trust placed by the general public and relevant stakeholders in the competent and responsible actions of a company.

Especially for companies in the energy industry, which is undergoing a period of fundamental change, this social acceptance is vitally important. A good reputation signals the willingness of society and its different stakeholder groups to cooperate with and invest in the company.

EnBW aims to continuously improve its reputation. The focal point of this concept is the stakeholder team, consisting of representatives from all important areas of the company, that was established in 2017. The stakeholder team directly or indirectly communicates and maintains dialogue with relevant stakeholder groups.

Reputation Index
Reputation is measured using the key performance indicator Reputation Index.

Key performance indicator

	2018	2017	Change in %	Forecast 2018
Reputation Index	51.3	52.1	-1.5	52.7

The Reputation Index of EnBW fell to 51.3 index points in the reporting year. This was a significant deviation from the target value for 2018. The values for comparable large companies fell more than the reputation of EnBW, while the values for municipal utilities and regional suppliers remained at the levels achieved in the previous year. As a result, the advantage held by EnBW over national energy suppliers with respect to reputation once again widened a little in 2018. However, the deficit between EnBW and smaller competitors also grew at the same time. In comparison to the previous year, this can be attributed to, amongst other things, the reduced media presence of EnBW themes in 2018.

More details on reputational risks can be found in the "Report on opportunities and risks" on p. 118.

Customer proximity

EnBW wants to take steps towards becoming an infrastructure provider. A sustainable contribution could be made, for example, in the form of cooperative partnership models with local authorities, municipal utilities and suppliers. EnBW also has great opportunities for generating additional revenue and for acquiring new customers using tailored digital services and solutions.

An important step in this direction was taken with the introduction of the sales and operation platform **EnPower**. EnPower was first launched for the NaturEnergie+ brand in the middle of 2017, then for Yello in the summer of 2018 and the EnBW brand is now also working intensively on this project. On the one hand, EnPower facilitates better interaction between customers and the EnBW, Yello and NaturEnergiePlus brands, while on the other hand, it provides the foundations for operating excellence with respect to the digitalisation, automation and streamlining of settlement processes for the supply of electricity. The non-commodity business is currently also being switched over to a new scalable IT platform. It will replace existing stand-alone solutions, cover the entire customer relationship and enable a 360 degree customer view thanks to its interface to EnPower. The first products such as the e-mobility charging infrastructure [Glossary, p. 153] were already transferred to the new platform in 2018.

Customer Satisfaction Index
The energy sector is driving major social changes. The new energy world is full of great opportunities that we want to exploit. Our customers stand at the focal point of our work and we strive to maintain **long-term customer relationships** by offering networked products and new product combinations, continuous open communication and the best possible quality of service. Customer loyalty is based on high customer satisfaction, which is measured in accordance with the requirements of the EnBW Group standard for market research and surveys. It is binding for EnBW and its subsidiaries. The Customer Satisfaction Index for the two brands of EnBW and Yello are compiled from customer surveys carried out by an external provider.

Key performance indicator

	2018	2017	Change in %	Forecast 2018
Customer Satisfaction Index for EnBW/Yello	120/152	143/161	-16.1/-5.6	128-138/ 148-159

The satisfaction of the customers of EnBW reached a good level in 2018 at 120 points. A good level is achieved when half of those surveyed indicate that overall they are particularly satisfied with EnBW. This is the case from 114 points and upwards. A very good level of satisfaction is achieved from 136 points upwards. The Customer Satisfaction Index for EnBW of 120 points was below the forecasted range. This can be explained to some extent by the fact that both regional suppliers and municipal utilities and also most of the major competitors across Germany had lower levels of overall customer satisfaction compared to 2017. This trend in the sector was also experienced at EnBW. In addition, price increases in early 2018 had a negative effect on customer satisfaction.

The satisfaction of Yello customers was once again stable at a very good level in 2018 at 152 points. However, the satisfaction of Yello customers nevertheless fell in comparison to the outstanding result in the previous year. Yello carried out a system migration in the summer of 2018. During the migration, Yello reduced its marketing activities and some services were only available to Yello customers to a limited extent for a short period of time.

EnBW, Yello and NaturEnergie+ received several **awards** for their products and customer service in 2018. EnBW was awarded the title of "Best electricity supplier in Germany" by Focus Money magazine and Statista as part of the Energy Atlas Germany 2018. The magazine Wirtschaftswoche (10/2018) ranked the best gas suppliers in the 100 largest cities using data from the comparison portal Verivox. The result: EnBW is one of the fairest gas suppliers in Germany. Both Yello and NaturEnergie+ were awarded the title of "Fairest electricity supplier" for the eighth time by Focus Money (edition 38/2018). In addition, EnBW won the Contracting Award for the second time in 2018, following its first award in 2010. The award is presented by the Energy Efficiency Association for Heating, Cooling and Combined Heat and Power (AGFW) and the magazine Energie & Management.

The **EnBW campaign** "We're making it happen" was continued with new refined motifs in 2018. The key themes were electromobility, wind power and customer solutions, using the example of EnBW solar+. It was important to EnBW to place a strong focus on customers in the implementation of the campaign. In this respect, the campaign is a logical continuation of the 2016 and 2017 campaigns – but shifting the focus from employees (the people making the Energiewende happen) to customers. The ongoing aim is to show a new EnBW that presents itself with a fresher and more unconventional image than before, especially on the advertising market. The campaign has been accompanied by two videos: An image video demonstrated the power that energy can give to people. A second video was a continuation of the animation film featuring "the birds on the high-voltage power line" that provided a humorous look at the theme of electromobility in 2018.

In 2018, EnBW expanded its portfolio of energy industry services and energy solutions and carried out numerous sales activities and communication measures. A special emphasis was placed here on **electromobility.** In this sector, EnBW has become a full-service provider and together with its subsidiaries covers the complete spectrum of services for the development and expansion of electromobility from the supply of electricity and the operation of a comprehensive charging infrastructure [Glossary, p. 153] through to digital services for the consumer. EnBW entered into various collaborations with renowned partners in 2018 that promote, above all, the expansion of the quick-charging infrastructure in urban areas across Germany. At the same time, EnBW almost tripled the number of charging stations available via the EnBW mobility+ app. The number of publicly accessible charging stations in Germany, Austria and Switzerland covered by the app increased from 8,000 to more than 22,000 in 2018. In addition, drivers can use the app directly to pay for the electricity used to charge their e-cars at these stations. The EnBW mobility+ Wallbox enables safe and easy charging at home with a charging capacity of up to 11 kW.

In the **SAFE project** (core charging network for electric cars in Baden-Württemberg), which is being promoted by the State of Baden-Württemberg, 77 municipal utilities, suppliers and local authorities are working together to develop a core charging network in Baden-Württemberg. EnBW is coordinating the project as the head of the consortium and acts as the contact for the state authorities.

With the solar solution **EnBW solar+**, customers themselves can become energy producers. A solar power plant including a storage system enables customers to produce their own solar electricity and then store it for use later on. We are working together closely with our subsidiary SENEC in this area. The acquisition of SENEC GmbH in the reporting year represented a major step towards EnBW becoming a full-service provider for home energy solutions. SENEC has sold more than 20,000 electricity storage systems with energy management functions and is one of the most important suppliers on the home storage market in Germany.

We use **bundle offers** [Glossary, p. 152] to offer customers attractive deals, promote market penetration and strengthen customer loyalty. Our customers are currently able to choose from three different devices with the new EnBW tariffs. At the same time, a cross-selling and customer referral campaign was started in combination with online advertising to increase traffic on our websites. The **Yello** Plus tariff – an energy contract offered in combination with a chosen device – was also in high demand in 2018. The range of hardware options available was continuously expanded to improve the attractiveness of the product even further.

The **contracting** business field has been made more competitive, transparent and sustainable by optimising the process for issuing quotes, customer proximity and shortening response times. A project realised by EnBW that involves an energy network solution in Waldbronn, near Karlsruhe, is one example here. Two industrial companies and two local authority facilities are supplied with heating, cooling, cooling water and electricity. The use of combined heat and power technology and the utilisation of waste heat not only result in cheaper generation costs but also avoid 680 t CO_2 emissions per year.

EnBW supports local authorities and municipal associations in the area of **broadband** [Glossary, p. 152] – from the planning and installation of infrastructure through to operation and the end-customer business. Cost efficiency, fast implementation and customer satisfaction hold the highest priorities in this area. For example, Rechtenstein is one of three communities across Germany that has received funding to become a "fibre-optic community" by installing fibre-optic cables throughout the entire area. Our subsidiary Netze BW began the construction work in October 2018. All of the companies and most of the households will have direct access to the fibre-optic network by the end of 2019. The network will be operated by NetCom BW. The company RBS wave, a subsidiary of Netze BW, secured the contract in a Europe-wide tender process in July 2018 to develop a broadband network for the Rastatt administrative district as the general planner. In the project, RBS wave is responsible for planning the fibre-optic backbone network for the connections to local areas of expansion/industrial estates, public facilities and all schools in the administrative district. The company is involved in all stages of the project through to completion and will thus have an active presence in all local authority areas. Another example for the development and expansion of critical system infrastructure in neighbouring business fields is security technology: Gernsbach in Murgtal will be the first community in Baden-Württemberg, for example, to be fitted by EnBW with

the new product EnBW SafePlaces – a smart video sensor system that is connected to the EnBW security control centre.

Supply reliability

Guaranteeing a reliable supply of electricity to our customers is a key goal of EnBW and its grid subsidiaries. For this purpose, the electricity grids must perform their distribution function with sufficiently high continuity. SAIDI is used as an indicator for supply reliability; it states the average duration of supply interruptions per connected end customer in minutes per year.

SAIDI
SAIDI is one of the key performance indicators in the area of electricity grids and is optimised by the distribution grid operators of EnBW using various processes that are partially integrated with one another: the desired grid topology (Glossary, p. 153) in the long term is thus already oriented towards optimising SAIDI at the planning stage. As part of an IT-supported asset simulation, various technical variants and their associated investment budgets are then analysed. Once the chosen variant has been implemented, the available investment budget for optimising SAIDI is distributed to the various different projects on an annual basis. The specific measures are selected based on performance indicators for plant reliability.

Key performance indicator

	2018	2017	Change in %	Forecast 2018
SAIDI (electricity) in min./year	17	19	-10.5	15-20

A similarly good level for SAIDI was achieved in the EnBW Group in 2018 as in the previous year and it was thus within the forecasted range.

Employees goal dimension

The key tasks of HR are providing the company with employees, including the promotion of young talent, encouraging loyalty to the company amongst employees and maintaining and fostering their motivation, satisfaction and employability. Leadership, corporate culture, HR development and health management are key aspects in this area. Other important elements of a successful HR policy are ensuring the best possible employment conditions, such as in the negotiation of collective bargaining agreements, as well as adapting the organisational structure to the business environment.

Therefore, we believe that the value drivers for our HR policy can be found in the following areas of focus:

- Leadership
- Safeguarding and promoting expertise
- Employment conditions and structures
- Health management

Employee Commitment

Employee Commitment Index (ECI)
The key performance indicator ECI is an important indicator for EnBW as it reflects the degree to which employees identify with the company. The annual measurement of this indicator enables us to respond specifically to any negative trends at an early stage.

Key performance indicator

	2018	2017	Change in %	Forecast 2018
Employee Commitment Index (ECI)[1]	62	60	3.3	62

1 Variations in the group of consolidated companies (consideration of companies controlled by the Group (without ITOs))

The fourth short survey for monitoring the ECI – MAB-Blitzlicht (Employee Flashlight) – was carried out between 17 September and 5 October 2018. As in the previous year, the MAB-Blitzlicht survey comprised just twelve questions and was carried out by taking a random representative sample. As in the full surveys, it collected information on the level of commitment of the employees to the Group and to their respective company. The ECI from MAB-Blitzlicht 2018 revealed a clear improvement from 60 (2017) to 62 points. The target set for 2018 was thus achieved. Considering the period of transformation at EnBW, the ECI value achieved by the Group placed it in a good position at the high end of mid-table when ranked against other companies in the sector.

The positive development of the ECI can once again be attributed to a better perception of the current competitiveness of the Group and employees having greater trust in the future viability of the Group. Following the latest survey, the Board of Management again set itself the goal of reducing the uncertainty and scepticism of the workforce with respect to these two factors. This was achieved through the resolute implementation of the 2020 strategy, in which we have made successful progress, and the discussion of the post 2020 strategy in dialogue with managers and employees across all departments and companies (strategy dialogue). In particular, the significant improvement in the perception of the competitiveness and future viability of the company by top and upper management demonstrated that the strategy presented and followed by the Board of Management of the Group has been met with acceptance and support. It was also possible to transfer this increasingly positive image to the remaining management team and employees and integrate them even more strongly into the process.

Areas of focus in HR

The most substantial measures and activities carried out by EnBW and the key subsidiaries are reported in the following areas of focus.

Leadership: The digital energy industry is characterised by a high level of complexity. In order to be able to react and lead appropriately in this environment, new skills are required. The leadership development activities at EnBW concentrate on the themes of managing the business, developing new products, leading people, methodological excellence and self-management as part of the **"Digital Leadership"** programme. Special importance is being given here to the improvement of cross-departmental cooperation and the formation of effective leadership coalitions, which are also supported by the increased use of agreements on team targets. The "Next Level Leadership" initiative has grown out of the "Digital Leadership" programme: After receiving fundamental guidance on what behaviour and skills are helpful in an increasingly dynamic and less predictable world, employees in leadership positions are provided with advice and offered individual learning experiences. A group of digital pioneers is, for example, being provided with an opportunity to learn about specific digital technologies and business models. In addition, change projects can be mentored through internal and external advice given on the job. For this, we use modern learning formats that enable participants to directly experience contemporary leadership at work. The aim is to realise the digital transformation of the Group more quickly and effectively.

The **Leadership Forum 2018** focused on the theme of "leadership and cooperation in a period of transition" for the successful implementation of the strategy post 2020. More than 700 managers and employees in leadership positions without disciplinary responsibility were able to exchange ideas on the new challenges, common values and individual learning goals at the event.

Alongside the annual management day and continuous training opportunities, the focus at PRE was placed on carrying out Assessment and Development Centres and work assessments based on a competency model. The Development Centre generally defines the development requirements for new or existing managers once a year based on eight managerial skills.

At Stadtwerke Düsseldorf (SWD), the focus in terms of leadership in the reporting year was placed on the continuation of the "Management Dialogue" and "Health-oriented Leadership" formats, as well as the "Kick-start for new managers" and "Equal opportunities in leadership" concepts.

VNG started the "Leadership compass" project in 2017. As part of this project, principles for appreciative leadership were developed together with managers. Eight meetings were held on this theme in 2018. The 180 degree feedback process for all management personnel at the VNG Group, which included a self-assessment by the managers and also an assessment by their superiors and employees, was also carried out. In addition, there were three managerial and employee days held on the theme of leadership and cooperation in the era of digitalisation. The International VNG P-Community meeting – which enabled a comprehensive exchange of ideas on current and perspective HR issues – was also held for the first time in 2018.

Safeguarding and promoting expertise: An important goal for EnBW is to be an attractive employer so that it can secure the expertise it requires and then retain this expertise within the company. In particular, the concepts and measures developed for this purpose focus on the themes of diversity, the promotion of young talent and the attractiveness of the employer.

Proportion of women and part-time employees at EnBW

in %	2018	2017	Change
Proportion of women in the overall workforce	26.4	26.2	0.2
Proportion of women in management positions	15.3	15.2	0.1
Proportion of women in management positions at EnBW AG			
First level below the Board of Management[1]	0.0	4.3	-4.3
Second level below the Board of Management[1]	15.1	14.0	1.1
Total proportion of part-time employees[2]	9.4	9.4	0.0
of which women[2]	82.8	82.6	0.2
of which men[2]	17.2	17.4	-0.2

1 The values refer to EnBW AG.
2 Excluding those in semi-retirement.

EnBW promotes **diversity** amongst its employees. Under the motto "Diversity generates success", EnBW relies on a diverse workforce in terms of numerous different criteria such as gender, age, interculturality, sexual orientation and people with disabilities, as well as sector backgrounds, different working models and work organisation. We hope to use the diversity in people and perspectives to better respond to the needs of the market, accelerate the speed of innovation, be an attractive employer and thus shape a successful future. The aim is to utilise the opportunities offered by diversity in all areas of the company so as to generate added value for employees and also for EnBW. In recognition of this diversity, EnBW took part in the Christopher Street Day in Stuttgart for the first time in 2018 with its own float. The motto was "LivingDiversity". We want to signal through our involvement that our workforce reflects the diversity of society and our customers and that we stand for an open society. In November 2018, the second "Diversity and Innovation" conference was held at the Innovation Campus in Karlsruhe with both internal and external participants. The focus was placed on the theme of "Actively managing diversity – opportunities and challenges". The aim of the conference was to discuss and promote the current diversity agenda at EnBW.

The fall in the proportion of women at the first level below the Board of Management was due to one person leaving the company without replacement and the fact that no other new appointments were made at this level in 2018. EnBW AG is placing its focus on increasing the number of women at the second level in order to develop suitable candidates for the first level.

The Board of Management has set the goal of further increasing the proportion of women in both management levels below the Board of Management in the period from 1 January 2017 to 31 December 2020. At both the first level (top management) and second level (upper management), the proportion of women should increase to at least 20%. Despite a great deal of effort, these targets were not yet achieved in 2018 (as of 31 December 2018).

Above and beyond the statutory requirements, the Board of Management focuses on diversity when filling management positions at the EnBW Group and also strives to give appropriate consideration to women. A fundamental goal of EnBW is to appoint women at all levels of the hierarchy. After piloting the multi-stage advisory service "CareerCompass" in 2016, the number of women provided with advice increased from 17 in 2017 to 49 in 2018. The advice is specifically designed for women with the potential to assume leadership roles, based on their previous career experience. The internal EnBW women's network is a well-used platform for female employees with and without leadership responsibility to exchange information and ideas.

In the external recruitment of young female leadership talent, EnBW relies on, amongst other measures, the Femtec network and participates in trade fairs and discussion forums tailored specifically for women. In the "Initiative Chefsache" network, the company has collaborated in five working groups. These include groups focussing on the themes of "Rethinking the development of talent" and "Part-time management" from which the internal pilot scheme "Management on a part-time/job-sharing basis" was derived in 2018 for employees in management positions. In the individual business units, sector-specific events and campaigns are carried out to address relevant requirements. For example, the subsidiary Netze BW holds an annual Women's Day that is specifically tailored to interested female students.

To ensure the success of the digital transformation at EnBW and find the right employees for growth fields such as electro-mobility, recruitment activities focus on securing the necessary new talent on the market. It is becoming increasingly difficult to find qualified experts with the required know-how on the external job market. Therefore, EnBW is developing its own active sourcing expertise to actively seek out potential candidates. For this purpose, the placement of advertisements and campaigns together with the channels and media used are oriented towards specific candidates. In addition, EnBW has started an "employees recruit employees" programme in selected areas of the company. An example of the success of our measures is the fact that EnBW AG was also certified by the Top Employers Institute as a Top Employer Germany 2018 based on a comprehensive catalogue of criteria and an external audit.

Promotion of young talent

in %	2018	2017	Change
Proportion of trainees including DH students	4.1	4.3	-0.2
Proportion of working students/interns	5.0	4.2	0.8

Another part of the HR policy is **promoting young talent**. The EnBW Group employed 938 trainees and students from the Cooperative State University (DH) as of 31 December 2018. There are plans to appoint 346 new trainees and DH students in 2019.

SWD launched the "Employer brand" project in 2018. Workshops were used here to assess aspects of cooperation and interaction in the company and compare the current situation with the desired goal. The results from these workshops and interviews are summarised in the positioning statement of the company as an employer. This is then communicated to the workforce and used as the basis for HR marketing.

VNG started discussions with Berufsakademie Sachsen, Staatliche Studienakademie Leipzig (the University of Cooperative Education) in 2017 about replacing the apprenticeship to become an industrial merchant with a dual degree. In particular, the new course should take into account the requirements of the digital world. The aim is for VNG and the university to develop a module on digitalisation together by 2019 that accounts for around 30% of the teaching content. In 2018, three students started their dual degrees at the university. Both internal and external workshops on the theme of digital working were also held. In a list compiled by the business magazine Focus on "The best employers in Saxony 2018", VNG was ranked in third place.

ED started a competence management project for the operation and maintenance of power plants in 2018 with a focus on the following four aspects: competence matrix, competence assessment, career and succession planning, and functional descriptions. Five information events were held to inform employees about the subject matter and train them to use the tools. A management workshop was then held at the end of November to evaluate the results from these events. In addition, managers were trained on how to handle discussions and evaluations, as well as on general themes dealing with the characteristics required for leadership.

PRE implemented numerous specific measures in 2018 that focussed on the recruitment of new employees in growth fields and the promotion of young talent.

EnBW introduced the new **communication platform Yammer** in 2018. It offers employees a diverse range of opportunities to exchange ideas, share experiences and work together on different themes. Yammer replaces Teamblog, which was introduced as the first digital dialogue medium within the Group at the end of 2014. Every employee can use the new platform to write articles, start small surveys and exchange ideas and information within public and closed groups. These groups are not tied to the departments and can be directly set up by all employees. The decision to launch Yammer as the official communication channel is the result of a joint project by IT and internal communication in close cooperation with the works council.

Employment conditions and structures: Further **efficiency measures** in some of the operational areas and functional units of EnBW AG are necessary to achieve additional savings up to 2020. In the functional units, the main focus was placed on the realignment of the IT department. In 2018, special emphasis was placed on training employees and recruiting new employees with key skills with respect to digitalisation and further strengthening the business orientation of the IT department. The ongoing efficiency enhancement programme in the area of conventional generation was rigorously continued. In the area of nuclear generation, further measures were agreed for the transition to the dismantling of the power plants. As a response to the increasing market pressure and in order to retain or enhance market viability and competitiveness and thus safeguard jobs, B2C services and activities relating to the third-party market were realigned within the operations business unit. Alongside the optimisation of the organisational structure that was completed on 1 April 2018, this included the successful introduction of new, agile, cross-functional working methods. As part of the further refinement of the organisational structure, another challenging milestone was achieved when the Yello brand went live on the new IT platform. This will make it possible to reduce the number of employees within the planned time period using socially acceptable tools. Other effects were achieved through adjustments to provisions in collective bargaining agreements as of 1 April 2018, such as increasing the weekly working hours, extending the framework working hours and adjustments to classifications.

Despite difficult underlying conditions, EnBW also achieved its ambitious earnings target in 2018. The Board of Management honoured the huge efforts made by the whole EnBW team with its decision to pay a **profit-sharing bonus** in 2018. The existing arrangement – according to which no profit-sharing bonus should be paid in 2018 – was once again suspended in agreement with the works councils.

The union ver.di and the Employers Association for Electricity Power Plants in Baden-Württemberg agreed on 19 February 2018 that remuneration will increase by 3.0% from 1 February 2018. Remuneration will increase uniformly for all trainees by €70. Holiday pay under the collective agreement was increased by 9.0%. This collective remuneration agreement was terminated by the union by the due date of 28 February 2019. The negotiations for a follow-up agreement resulted in an agreement on 28 February 2019 whereby **tariff-based remuneration** will increase in three stages over a period that runs until at least 28 February 2021: by 2.5% from 1 March 2019, by a further 1.9% from 1 November 2019 and by an additional 1.9% from 1 July 2020. The remuneration rates for trainees will increase on these dates by €80, €50 and then a further €50. The collective bargaining agreement at PRE was extended by two years at the beginning of 2018. The agreed increase in remuneration was above the guaranteed minimum increase in the previous collective bargaining agreement due to the challenges on the Czech labour market.

Health management: The welfare of employees has always been an important issue for EnBW. As part of occupational health and safety management, the company offers a variety of activities in the areas of occupational safety and health protection in the key companies. For example, a **week-long campaign** on the theme of "Don't stress about stress" was held at the Karlsruhe site at the beginning of October 2018 in which employees of EnBW were able to participate in talks and workshops. In addition, employees were able to measure their heart rate variability to obtain information on their own personal stress levels. Another example is provided by the **health days** that were organised by EnBW at the start of the 2018 training year for the new commercial and technical apprentices at the sites in Karlsruhe, Stuttgart, Heilbronn and Biberach. During these health days, the apprentices were able to gain an overview of the health services offered by EnBW – from medical examinations and health courses through to preventative measures for specific target groups. In addition, the police departments at each of the training sites supported the preventative activities offered by EnBW with **talks and workshops** on themes such as addiction to alcohol, drugs, mobile phones, the Internet and gaming, as well as traffic safety, cyberbullying, violence prevention and the correct use of digital media.

All of the teams and departments at ED were surveyed on the subject of "Risk assessment – psychological stress" in 2018 and the first measures were derived from the results. Furthermore, the possibilities for working from home and for mobile working were expanded as part of the measures undertaken for validation of the "berufundfamilie" ("career and family") certificate. PRE offers, amongst other things, a comprehensive preventative programme that focuses on breast, skin and prostate cancer. SWD has a programme focussing on health-oriented management at the team leader level. There are also numerous opportunities for employees to improve their personal fitness and take advantage of preventative healthcare, such as seasonal flu injections. VNG offers a comprehensive range of preventative occupational medicine in the fields of heart, circulation, metabolism and musculoskeletal illnesses via its company doctors and also carries out eye and hearing tests as well as ECG and laboratory testing. In addition, the company arranges appointments with specialist doctors at short notice in cooperation with a health-care centre in Leipzig.

Sickness ratio

in %	2018	2017	Change
Sickness ratio	5.1	5.0	0.1

The sickness ratio did not change significantly compared to the previous year.

Other performance indicators

Employees of the EnBW Group[1]

	31/12/2018	31/12/2017	Change in %
Sales	3,657	3,331	9.8
Grids	8,920	8,858	0.7
Renewable Energies	1,144	1,050	9.0
Generation and Trading	5,419	5,457	-0.7
Other	2,635	2,656	-0.8
Total	**21,775**	**21,352**	**2.0**
Number of full-time equivalents[2]	20,379	19,929	2.2

1 Number of employees excluding apprentices/trainees and inactive employees.
2 Converted into full-time equivalents.

As of 31 December 2018, the EnBW Group had 21,775 employees. As new appointments are only being made in strategic growth fields, the number of employees was just slightly higher than the level at the end of 2017. The increase in the Sales segment was mainly due to restructuring within the Group. This was offset to some extent by the withdrawal from the B2B commodity business under the EnBW and Watt brands. The number of employees in the Grids segment increased compared to the previous year's reporting date. This was due to two conflicting developments: on the one hand, the movement of employees to the Sales and Renewable Energies segments as part of the restructuring, and on the other hand, an increase in the number of employees due to the growing importance of the regulated business and the first-time consolidation of Technologie Service Heilbronn GmbH. The reduction in the Generation and Trading segment was mainly due to the deconsolidation of VNG Norge. Restructuring within the Group and the associated transfer of employees to the Sales segment and the planned departure of employees based on earlier restructuring programmes resulted in a decrease in the number of employees in the "Other" segment. However, these two effects were partially balanced out due to the new appointments in the business areas of digitalisation and critical infrastructure.

Turnover

in %	2018	2017	Change
Employee turnover ratio	6.5	7.0	-0.5

In contrast to 2017, there were no new restructuring programmes in 2018. The employee turnover ratio thus fell in comparison to the previous year.

Further performance indicators for employees, such as the regional distribution or age structure of our employees, can be found on our website at www.enbw.com/performance-indicators.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 118).

Occupational safety

The main goals of EnBW in the area of occupational safety are to avoid accidents and work-related illness, to create a safe working environment and clearly regulate responsibilities, roles and processes. In order to achieve these targets, EnBW already founded the Occupational Safety Working Group (AK KAS) in 2003. AK KAS has the task of regulating issues that affect all companies uniformly within the Group. Its scope of application covers those companies that use LTIF as a performance indicator. AK KAS is headed by the Chief Technical Officer of EnBW and has the power to make binding decisions in accordance with the company's rules of procedure.

LTIF

The key performance indicator LTIF is used to measure the number of accidents at work and the resulting days of absence. Every Group company included in the consolidated companies for the LTIF receives an individual target from the Board of Management for the relevant year – the fulfilment of this LTIF target flows into the monetary assessments for the achievement of relevant targets. Above and beyond these targets, the companies also set their own individual targets.

Key performance indicator

	2018	2017	Change in %	Forecast 2018
LTIF[1]	2.3	3.0	-23.3	≤3.7[2]

1 Variations in the group of consolidated companies (consideration of all employees at those companies controlled by the Group, except external agency workers and contractors).
2 Three-year target for 2017, 2018 and 2019.

In 2018, the LTIF improved significantly compared to the previous year to 2.3, after this key performance indicator had already experienced a noticeable drop in 2017. However, the average days of absence per accident rose to 22.2 (previous year: 16.8). We believe that the significant improvement in occupational safety at EnBW is the result of consistent and effective activities in the area of occupational safety and health protection.

In the reporting year, there was a fatal accident at a third-party company that was working on behalf of the EnBW Group.

The measures for achieving targets are independently defined by the Group companies. There were various different **activities focussing on occupational safety** in 2018:

The new software EcoWebDesk (EWD) – which has been called Quentic since October 2018 – was introduced into further areas at EnBW. The technical preparations for the deployment of Quentic have largely been concluded. Important elements of Quentic are the documentation of risk assessments and hazardous substance management. The launch of the "Risk & Audit" (audit management) module at our subsidiary Netze BW will begin in 2019.

In the Grids segment, a series of campaigns to further improve the safety culture were carried out in 2018:

- A meeting of the safety officers to discuss the latest issues was held in April. In addition, some manufacturers presented their products in the area of personal protective equipment at this large event. Seminars have been offered for the safety officers to help them improve their role since the end of 2017.
- The occupational safety management system was successfully recertified in September.
- In November, Netze BW carried out a "Flashlight Day" across all sites to raise awareness amongst employees for occupational safety and health protection.
- The project "Working safely on the grid" (SaiN), which was designed to ensure that employees working on behalf of the grid operating companies are trained to a sufficient level, was concluded in 2018.

In the area of conventional and renewable generation, a two-day campaign called "Occupational safety days" was held at each of the power plant sites. Rescue concepts (rescuing at heights and depths) at the individual sites were also improved further. In addition, the "100 days without accidents" campaign started in 2015 was continued. The 100-day goal was achieved a total of 16 times across a number of power plant sites.

The main focus at SWD was placed on the following activities:

- As part of the occupational safety and healthcare protection programme OS/HP Programme 2015plus, a concept for dealing with "near accidents" was developed.
- The workshop covering behavioural aspects was continued as part of the OS/HP Programme 2015plus.
- As part of the "RheinSchiene" project, a special "safety officers' day" was held for the first time in Düsseldorf.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 118).

Environment goal dimension

The main subsidiaries of EnBW that have to deal with environmental issues have an environmental management system certified according to DIN EN ISO 14001:2015. These include, amongst others, EnBW AG, Netze BW, Stadtwerke Düsseldorf and Energiedienst Holding. In accordance with the DIN standard, these environmental management systems follow a concept of continuous improvement in environmental performance which is based on the method Plan-Do-Check-Act (PDCA). The systems encompass the definition and realisation of environmental targets with their performance indicators and corresponding measures, the procedures and responsibilities and the identification of environmentally relevant risks and opportunities. Alongside the Group environmental targets, which are modelled with the aid of the key performance indicators, the main subsidiaries that have to deal with environmental issues have also defined additional, quantified environmental targets within the scope of their environmental management systems – especially in the areas of energy saving/efficiency and mobility. Using established due diligence processes and internal audit programmes, the agreed regulations and guidelines are then monitored in terms of legal and other requirements, as well as with regard to the defined environmental targets. In addition, the effectiveness of the measures and targets is examined by external certification bodies as part of the annual conformity audits of the environmental management systems. If necessary, the processes and guidelines, as well as the targets and measures, will be adjusted. The consistent implementation and further development of the environmental management system guarantees that significant negative impacts on the environment can be avoided as well as possible. Risks generally exist in the area of environmental protection due to the operation of power generation and transmission plants and the possible consequences for the air, water, soil and ozone layer. These risks are countered by EnBW using an emergency and crisis management system that has been implemented throughout the Group and includes comprehensive organisational and procedural measures.

Our Group environmental targets are related to the expansion of renewable energies and making our contribution to climate protection. These targets are measured using the key performance indicators "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" and CO_2 intensity (Glossary, p. 152).

Expansion of Renewable Energies

Key performance indicator

	2018	2017	Change in %	Forecast 2018
Installed output of RE in GW and the share of the generation capacity accounted for by RE in %[1]	3.7/27.9	3.4/25.8	8.8/8.1	3.6–3.7/ 27–28

1 The figures for the previous year have been restated.

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

In the reporting year, the installed output of renewable energies increased by 387 MW to around 3.7 GW and was thus within the range of the forecast. This was primarily due to the commissioning of the pumped storage power plant Obervermuntwerk II. In addition, 178 MW was attributable to the expansion and acquisition of several onshore wind farms with a total of 81 wind turbines. An additional 22 MW of output was added at photovoltaic power plants. Overall, the share of the generation capacity accounted for by RE increased – within the range of the forecast – to 27.9%.

Breakdown of the generation portfolio of the EnBW Group[1] (as of 31/12)

Electrical output[2,3] in MW	2018	2017
Renewable Energies	**3,738**	**3,351**
Run-of-river power plants	1,006	1,004
Storage/pumped storage power plants using the natural flow of water[3]	1,507	1,327
Onshore wind	718	540
Offshore wind	336	336
Other renewable energies	171	144
Thermal power plants[4]	**9,661**	**9,656**
Brown coal	875	875
Hard coal	3,491	3,523
Gas	1,468	1,431
Other thermal power plants	349	349
Pumped storage power plants that do not use the natural flow of water[3]	545	545
Nuclear power plants	2,933	2,933
Installed output of EnBW Group[5]	**13,399**	**13,007**
of which renewable in %	27.9	25.8
of which low CO_2 in %[6]	15.0	15.2

1 The generation portfolio includes long-term procurement agreements and generation from partly owned power plants.
2 The figures for the previous year have been restated.
3 Output values irrespective of marketing channel, for storage- generation capacity.
4 Including pumped storage power plants that do not use the natural flow of water.
5 In addition, power plants with an installed output of 1,706 MW were registered for decommissioning. However, they were classified as system-relevant by the Federal Network Agency and TransnetBW and are thus used by TransnetBW as reserve grid capacity.
6 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

Own generation of the EnBW Group[1] by primary energy source

in GWh	2018	2017
Renewable Energies	**8,414**	**8,290**
Run-of-river power plants	4,846	5,012
Storage/pumped storage power plants using the natural flow of water	1,030	946
Onshore wind	996	661
Offshore wind	1,233	1,416
Other renewable energies	309	255
Thermal power plants[2]	**45,078**	**41,904**
Brown coal	6,048	6,027
Hard coal	12,868	12,977
Gas	3,518	3,436
Other thermal power plants	198	211
Pumped storage power plants that do not use the natural flow of water	1,790	1,721
Nuclear power plants	20,656	17,532
Own generation of the EnBW Group	**53,492**	**50,194**
of which renewable in %	15.7	16.5
of which low CO_2 in %[3]	9.9	10.3

1 Own electricity generation includes long-term procurement agreements and partly owned power plants.
2 Including pumped storage power plants that do not use the natural flow of water.
3 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

Own generation of the EnBW Group increased in 2018 compared to the previous year to around 53.5 TWh. Generation based on renewable energy sources mainly increased due to the expansion of onshore wind power. This was offset to some extent by lower generation from offshore wind power due to unfavourable wind conditions, and at the run-of-river power plants due to low water levels in the second half of 2018. The proportion of own generation from renewable energy sources fell despite the increased generation in comparison to 2017 to 15.7%. The reason for this was an increase in own generation from nuclear energy caused by the extension of the inspection and related production shortfall at KKP 2 in the previous year.

In October 2018, a green bond (Glossary, p. 153) was issued to finance, amongst other things, the further expansion of the onshore wind farm portfolio (p. 85 f.).

Climate protection

Key performance indicator

	2018	2017	Change in %	Forecast 2018
CO_2 intensity in g/kWh	553	556	-0.5	-10% to 0%

CO_2 intensity

The CO_2 intensity (Glossary, p. 152) of own generation of electricity excluding nuclear power fell slightly in comparison to the previous year by 0.5% to 553 g/kWh and was thus within our forecasted range. This fall was due to the higher generation from renewable sources and the simultaneous almost constant level of electricity generation from fossil fuels in comparison to 2017.

Other performance indicators

In addition to the key performance indicators in the area of the environment, EnBW utilises a broad range of additional environmental indicators for measuring, controlling and presenting the other results of its environmentally relevant activities. The most important performance indicators are presented in the following table on p. 104. A comprehensive presentation of the environmental performance indicators for EnBW can be found on the Internet at www.enbw.com/umweltschutz.

There is also information available here on our wide-ranging measures to improve energy efficiency, the conservation of biological diversity and the protection of nature and species, such as our EnBW amphibian protection programmes or on ecological enhancement measures in the area of our hydroelectric power plants. In addition, further information relating to the Global Reporting Initiative (GRI standards) can be found on the Internet.

Carbon footprint: Direct CO_2 emissions are determined mainly by the deployment of power plants. The slight decrease in electricity generation from coal led to a corresponding reduction in the direct CO_2 emissions from 16.7 to 16.6 million t CO_2eq. Lower indirect CO_2 emissions from grid losses led to a fall in Scope 2 CO_2 emissions from 1.1 million t CO_2 to 1.0 million t CO_2eq. The Scope 3 CO_2 emissions are mainly influenced by the gas consumption of our customers. EnBW has significantly expanded its gas sales due to the acquisition of VNG. VNG was only fully consolidated in the second quarter of 2017. Gas sales in the first quarter were thus reported for the first time in the 2018 financial year. This resulted in a significant increase in Scope 3 emissions. As a result of the increased generation from renewable energy sources and rise in the use of biomethane, CO_2 emissions avoided rose from 6.3 to 6.9 million t CO_2eq.

Energy consumption: Total final energy consumption includes the consumption of final energy for the business activities of EnBW. It does not include conversion losses during energy generation or grid losses. Total final energy consumption is mostly influenced by pump energy as well as the company's own consumption requirements and the operating consumption of the power plants. It remained almost unchanged at the same level as in the previous year at 3,252 GWh.

The proportion of renewable energies in the final energy consumption increased from 49% in 2017 to 51% in 2018. This was primarily due to an increase in pump energy at the pumped storage power plants operated by Vorarlberger Illwerke, which utilise green electricity.

The energy consumption of our buildings covers the energy required for heating rooms, providing hot water and electricity. The energy consumption of buildings per employee increased from 10,214 kWh in 2017 to 10,482 kWh in 2018. This increase is not due to higher energy consumption, but rather to the fact that VNG was only fully consolidated in the second quarter of 2017. Accordingly, the high amount of energy consumed by VNG for heating due to the weather conditions in the first quarter of 2017 was not included in the figures and resulted in lower energy consumption per employee for the previous year.

Environmental protection expenditure: We report environmental protection expenditure in line with the requirements of the statistical offices and using the guidelines published by our sector association, the BDEW. Investment in the expansion of renewable energies in 2018 was below the level in the previous year. The reason for this development was the sharp expansion in onshore wind farms in 2017. This led to a reduction in investment for environmental protection to €535 million and a drop in the ongoing expenditure relating to environmental protection to €268 million in comparison to the previous year.

Environmental performance indicators

	Unit	2018	2017
Carbon footprint			
Direct CO_2 emissions (Scope 1)[1,2]	millions of t CO_2eq	16.6	16.7
Indirect CO_2 emissions (Scope 2)[3]	millions of t CO_2eq	1.0	1.2
Other indirect CO_2 emissions (Scope 3)[4]	millions of t CO_2eq	33.6	23.7
CO_2 emissions avoided[2,5]	millions of t CO_2eq	6.9	6.3
CO_2 intensity of business journeys and travel[6]	g CO_2/km	151	176
Energy consumption			
Total final energy consumption[2,7]	GWh	3,252	3,254
Proportion of renewable energies in final energy consumption[2,8]	%	51	49
Energy consumption of buildings per employee[2,9]	kWh/MA	10,482	10,214
Environmental protection expenditure[10]			
Investment in environmental protection	€ million	535	650
Current environmental protection expenses[2]	€ million	268	345

1 Preliminary data.
2 The figures for the previous year have been restated.
3 Includes greenhouse gas emissions through electricity grid losses and through electricity consumption of plants in the gas and electricity grid, water supplies and buildings.
4 Includes greenhouse gas emissions through consumption of purchased electricity volumes by customers, consumption of gas by customers, fuel provision and business travel.
5 Includes CO_2 emissions avoided through the expansion of renewable energies, through energy efficiency projects with customers/partners and through the generation and sale of biogas.
6 Includes all business travel and business activities (Scope 1 and Scope 3).
7 Includes final energy consumption of production including pump energy, energy consumption of grid facilities (electricity, gas and water) excluding grid losses, energy consumption of buildings and vehicles.
8 For electricity consumption for which the proportion of renewable energies is unknown, a proportion of renewable energies in accordance with the current Bundesmix (federal mix) label for electricity of 32% is used. For fuels, a proportion of 5% bioethanol is generally used.
9 Calculated partially on the basis of assumptions and estimations.
10 Pursuant to the German Environmental Statistics Act (UStatG) and BDEW guidelines on the recognition of investment and ongoing expenditure relating to environmental protection (April 2007).

Mobility at EnBW: EnBW further expanded its fleet of electric cars to 167 vehicles in 2018 and continues to follow the goal of being one of the largest electric fleet operators in Germany.

In order to motivate its employees to use alternative, environmentally friendly solutions for the daily trip to work, EnBW introduced attractive incentives for employees in 2018. These included, for example, a subsidy for the purchase of a yearly ticket to use the public transport systems in Karlsruhe and Stuttgart. In the "job bike" scheme, EnBW as an employer offers its employees the opportunity to purchase high-quality bikes and e-bikes at favourable conditions. As part of the "Your BMW i3" campaign, 180 employees were drawn at random from the numerous applicants and were given the opportunity to purchase the latest BMW i3 model at favourable conditions so they can complete their daily commute using electric power in future.

Hydropower: Electricity generated from hydropower protects the climate. At the same time, the use of hydropower also encroaches on nature. Therefore, EnBW is committed to harmonising hydropower with ecology. If power plants cause changes to the natural landscape, we compensate for these effects through ecological enhancement measures. For example, we ensure or improve the continuity of watercourses by constructing or optimising fish passes and fish ladders for fish to ascend or descend the river, such as at the small hydroelectric power plant in Maulburg. By constructing weir turbines, we guarantee that there is a sufficient level of residual water and also ensure that this water is used for climate-friendly energy generation such as at the hydropower plants in Wyhlen and Ladenburg.

Conservation of biological diversity: EnBW initiated the programme "Stimuli for Diversity" for the protection of amphibian species together with the LUBW (Baden-Württemberg State Institute for the Environment) in 2011. Due to the major success of and positive response to the programme in the first five years, the funding programme was updated in 2016 and has since also included funding for protective measures for reptiles. The EnBW funding programme "Stimuli for Diversity" is part of the project "The economy and business for nature", which is a component of the state initiative "Active for biological diversity". It still remains the only conservation programme from a company both in Baden-Württemberg and nationwide that not only funds the protection of one single species but two whole groups of species across the state. In the reporting year, nine further projects were realised. More than 100 measures have been implemented in total across Baden-Württemberg since the start of the funding programme, which have successfully improved the living conditions for many endangered species in the state. EnBW will also continue the funding programme in 2019 based on this tried-and-tested method.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 118 f.).

EnBW AG

The financial statements of EnBW AG have been prepared in accordance with the regulations in the German Commercial Code (HGB), the German Stock Corporation Act (AktG) and the law governing the electricity and gas industries in Germany (Energy Industry Act – EnWG). The regulations for large corporations apply.

The financial statements as audited by the KPMG AG Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, as well as the management report of EnBW AG contained in the Group management report, will be published in the German Federal Gazette (Bundesanzeiger).

For statements that are necessary to understand the position of EnBW AG and which are not explicitly described in the following sections, especially those relating to the strategy of the company and economic and political conditions, please refer to the information provided for the EnBW Group (p. 48 ff. and 72 ff.). The full financial statements of EnBW AG are available for download at (www.enbw.com/report2018-downloads).

The annual net profit which indicates the company's ability to pay a dividend is an important performance indicator for EnBW AG.

Results of operations of EnBW AG

Condensed income statement of EnBW AG

in € million[1]	2018	2017	Change in %
Revenue	24,883.1	16,734.6	48.7
Cost of materials	-24,364.2	-15,969.4	52.6
Amortisation and depreciation	-458.1	-436.4	5.0
Other operating result	-502.6	1,226.7	-140.9
Earnings before interest and taxes	**-441.8**	**1,557.5**	**-128.4**
Financial result	-73.0	673.9	-111.4
Tax	-285.9	-241.7	18.3
Annual net loss/profit	**-800.7**	**1,989.7**	**-140.4**

1 In accordance with German commercial law.

EnBW AG reports an annual net loss of €800.7 million. The substantial decrease in comparison to the previous year was mainly influenced by €1,999.3 million lower earnings before interest and taxes and the decrease in the financial result of €746.9 million.

The operating result of EnBW AG is primarily determined by the revenues generated from electricity and gas sales, as well as by the associated cost of materials.

In the earnings before interest and taxes, the increase in revenue of €8,148.5 million was offset by an increase in the cost of materials of €8,394.8 million.

The revenue (after the deduction of electricity and energy taxes) of €24,883.1 million primarily includes revenue from electricity sales of €11,904.0 million and from gas sales of €11,771.5 million. Electricity and gas sales comprise both the trading business, involving deliveries to trading partners and stock exchanges, and sales activities in the form of the direct delivery of energy to end customers.

As a result of the significant expansion in trading activities in 2018, the trading business recorded an increase in revenue of €8,042.6 million to €21,780.3 million. This effect was further strengthened by increasing prices on the energy markets. However, the increase in revenue was also offset by the increase in the cost of materials of €8,177.5 million to €21,207.5 million.

Revenues from sales activities were split into €1,746.0 million for electricity and €189.6 million for gas, which represented an overall drop of €128.5 million.

In the retail and end customer sector (B2C), electricity sales were below the level in the previous year, decreasing by 0.3 billion kWh to 6.9 billion kWh, which was also reflected in the fall in revenue. This was due to, amongst other things, increasing energy efficiency and a slight fall in the contract portfolio. Gas sales of 3.9 billion kWh in the same period were 0.1 billion kWh higher than in the previous year due to the increasing number of contracts. Revenue was thus at around the same level as in the previous year.

Due to the closure of the commodity sales business at a subsidiary, the reserve supply held for B2B customers and the internal supply contracts held within the Group were transferred to EnBW AG. The sales to business customers (B2B)

in the electricity business stood at 0.8 billion kWh as a result and were 0.7 billion kWh above the figure in the previous year. Gas sales in the B2B sector increased in the same period by 0.1 billion kWh to 0.3 billion kWh.

The cost of materials includes costs for electricity procurement of €10,507.8 million and costs for gas procurement of €11,600.4 million.

Alongside scheduled amortisation and depreciation, the amortisation and depreciation item includes impairment losses of €90.4 million.

The considerable decrease in the other operating result was primarily attributable to the positive extraordinary effect in the previous year of the reimbursement of the nuclear fuel rod tax. The share attributable to EnBW AG was €1,340.0 million. Other important effects in the 2018 financial year were lower earnings from reversals of impairments of €132.5 million and lower earnings from the disposal of assets of €192.6 million in comparison to the previous year.

The negative development of the financial result was mainly influenced by special dividend payments received from funds in the previous year of €364.0 million, higher impairment losses on financial assets of €98.8 million and higher interest expenses for pension provisions of €219.2 million. This mainly includes higher accretion of the provisions of €59.1 million and lower valuation effects within the Contractual Trust Arrangement (CTA) of €144.0 million in comparison to the previous year.

The tax expense in the 2018 financial year was €285.9 million, which represents an increase of €44.2 million. The taxes mainly comprise allocations to the provisions for tax audit risks. The option of recognising a surplus of deferred tax assets was not exercised.

Net assets of EnBW AG

Balance sheet of EnBW AG

in € million[1]	31/12/2018	31/12/2017	Change in %
Assets			
Non-current assets			
Intangible assets	635.4	762.2	-16.6
Property, plant and equipment	1,248.4	1,385.3	-9.9
Financial assets	20,130.5	19,556.1	2.9
	22,014.3	21,705.6	1.4
Current assets			
Inventories	446.7	594.9	-24.9
Receivables and other assets	3,336.4	3,123.1	6.8
Securities	119.2	114.3	4.3
Cash and cash equivalents	628.1	1,655.7	-62.1
	4,530.4	5,488.0	-17.4
Prepaid expenses	1,226.3	545.0	125.0
Surplus from offsetting	268.1	266.1	0.8
	28,039.1	28,004.7	0.1
Equity and liabilities			
Equity			
Subscribed capital	706.1	706.1	0.0
Treasury shares	-14.7	-14.7	0.0
Issued capital	(693.4)	(693.4)	(0.0)
Capital reserve	776.0	776.0	0.0
Revenue reserves	1,872.5	2,124.5	-11.9
Retained earnings	279.1	963.2	-71.4
	3,621.0	4,557.1	-20.6
Extraordinary items	24.0	23.6	1.7
Provisions	11,032.4	10,965.9	0.6
Liabilities	12,414.7	12,044.4	3.1
Deferred income	947.0	413.7	128.9
	28,039.1	28,004.7	0.1

1 In accordance with German commercial law.

The net assets of EnBW AG as of 31 December 2018 are significantly influenced by the non-current assets (particularly the financial assets), the receivables and other assets, as well as by cash and cash equivalents. These are primarily offset by non-current liabilities and provisions relating to nuclear power and for pensions and similar obligations.

Financial assets primarily consist of shares in affiliated entities to the amount of €13,463.3 million, securities in non-current assets to the amount of €2,751.7 million and equity investments to the amount of €1,914.0 million. The increase in financial assets of €572.4 million includes, on the one hand, shares in affiliated entities primarily as a result of payments into the capital reserve of EnBW Offshore 3 GmbH of €258.0 million and EnBW Renewables International GmbH of €82.7 million. In addition, loans to affiliated entities increased by €134.7 million in comparison to the previous year.

Trade receivables to the amount of €784.2 million mainly comprise receivables for trading activities and consumption accruals for electricity and gas deliveries not yet invoiced and were €587.2 million below the figure in the previous year.

The cash and cash equivalents of EnBW AG totalling €628.1 million mainly consist of bank deposits, which are invested as time deposits to the amount of €492.7 million. More details on the development of this item can be found under "Financial position of EnBW AG".

The provisions for pensions and similar obligations held by EnBW AG to the amount of €4,768.5 million combine obligations from the company pension scheme and other company agreements made by major subsidiaries and EnBW AG. The resulting annual expenses for retirement benefits are paid by the subsidiaries concerned in each case. The increase in the provisions for pensions and similar obligations of €504.5 million was mainly due to the effect of the further decrease in the discount rate as in the previous year. In addition, provisions relating to nuclear power of €3,921.3 million are disclosed, which arise due to public law obligations and requirements in the operating licences.

Of the liabilities totalling €12,414.7 million, €6,470.4 million have a residual term of more than one year. Overall, there are liabilities of €8,233.3 million to affiliated entities, which primarily result from intercompany settlement transactions within the framework of the centralised financial and liquidity management, as well as from loan agreements.

The increase in liabilities by €370.3 million was mainly due to the increase in other liabilities from margin payments of €362.9 million and to option premiums received of €70.9 million. This was offset by the repayment of a bank loan with a volume of €70.5 million.

Non-current liabilities exist to the amount of €2,622.0 million to EnBW International Finance B.V. as part of the Debt Issuance Programme (DIP) (Glossary, p. 152), to the amount of €1,992.6 million from the issuing of three hybrid bonds and to the amount of €668.2 million from loan agreements with credit institutions.

The aim is to cover the non-current pension and nuclear provisions with appropriate financial assets within an economically feasible time period. Overall, financial assets of €20,130.5 million are offset by long-term debt of €14,758.3 million.

The liquidity of EnBW AG on the reporting date guarantees the solvency of the company for the payment of current liabilities from the operating business.

Financial position of EnBW AG

In comparison to the reporting date in the previous year, the liquidity of EnBW AG decreased from €1,655.7 million by €1,027.6 million to €628.1 million.

The cash flows of EnBW AG fundamentally arise from both its own operating business and also those of its subsidiaries which balance payments received and made via the bank accounts of EnBW AG as part of the intercompany cash pooling system (Glossary, p. 152) within the framework of the central financing and liquidity management.

Important business transactions that had an effect on the financial position of EnBW AG in the financial year are summarised below:

An important liquidity-related business transaction in the reporting year was an investment in the area of renewable energies to the amount of €305.9 million.

Bonds issued by EnBW International Finance B.V. as part of the DIP with a total volume of €835.8 million were repaid on time by the company. This was offset by the issuing of a bond with a volume of €500.0 million and a commercial paper (Glossary, p. 152) with a volume of €250.0 million. The associated liability to EnBW International Finance B.V. changed accordingly.

Cash and cash equivalents of €219.1 million were used as collateral for trading transactions.

A total of €135.4 million was distributed to the shareholders of EnBW AG in dividends.

In the 2018 financial year, EnBW AG paid tax arrears for income tax from previous years (including the associated interest) in the amount of €131.3 million.

Overall assessment of the economic situation of EnBW AG and the development of EnBW AG

In our judgement, the development of the results of operations, financial position and net assets of EnBW AG as of 31 December 2018 is satisfactory after taking into account the effects described below that are not relevant to the ongoing management of the company. In the previous year, an annual net loss of €400 million was expected in 2018. The annual net loss for 2018 stands at €800.7 million and was significantly influenced by effects not relevant to the ongoing management of the company, which arose both at EnBW AG itself and also at its subsidiaries which had an impact on EnBW AG due to profit and loss transfer agreements.

The main effects not relevant to the ongoing management of the company were higher interest expenses for pension provisions and provisions relating to nuclear power totalling €571.5 million (€518.0 million of which is reported under interest expense of EnBW AG) resulting from the drop in the discount rate and were thus €33.5 million higher than expected. Furthermore, the allocations to the provisions relating to nuclear power, mainly due to the higher rate of increase of costs, of €284.0 million (of which €208.8 million was reported under the cost of materials of EnBW AG) had a negative effect and were €160.0 million higher than expected. Other negative effects arose from income taxes relating to other periods (mainly from tax audit risks) of €319.9 million, as well as impairment losses on financial assets of €104.3 million and on intangible assets and property, plant and equipment of €90.4 million. Further negative effects on earnings were the extension to the inspection of Block 2 of the Neckarwestheim nuclear power plant (GKN II) and the lower electricity generation from the run-of-river power plants as a result of low water levels caused by the unfavourable weather conditions.

These were mainly offset by the reversal of provisions for onerous contracts of €278.0 million and the reversal of impairment losses on property, plant and equipment and financial assets of €190.2 million.

Based on an annual net loss of €800.7 million and taking account of the profit carried forward of €827.8 million and the withdrawals from other revenue reserves of €252.0 million, retained earnings amounted to €279.1 million.

We anticipate an annual net profit of around €200 million in 2019. The net result for the year will be negatively influenced by high interest expenses for non-current provisions. As a result of the low-interest phase, the average interest rate will fall further in the future. In 2019, we expect a negative impact on earnings due to effects not relevant to the ongoing management of the company of between €500 million and €600 million overall. These negative impacts on earnings will be offset by expected positive effects on earnings that are not relevant to the ongoing management of the company of €500 million. Adjusted for these effects, the annual net profit will be between €200 million and €300 million. The amount from the valuation of the provisions for pension obligations and the valuation of the dedicated financial assets (Glossary, p. 152) in the CTA that is ineligible for distribution as dividends will stand at around €850 million by 31 December 2019. In 2020 and 2021, we expect the negative impacts on earnings due to the falling average interest rate to lessen.

Opportunities and risks

As the business performance, economic situation and opportunities and risks relating to the future development of EnBW AG do not deviate from the business performance, economic situation and opportunities and risks relating to the future development of the EnBW Group, the management report of EnBW AG is combined with that of the EnBW Group (p. 114 ff.).

Comments on reporting

The consolidated financial statements of EnBW AG are prepared in accordance with section 315 e (1) HGB using the International Financial Reporting Standards (IFRS) set by the International Accounting Standards Board (IASB), the adoption of which is mandatory in the EU as of the reporting date. As a vertically integrated energy company in the sense of EnWG, EnBW AG engages in other activities within the electricity sector, other activities within the gas sector and other activities outside of the electricity and gas sectors in accordance with section 6 b (3) sentence 3 and sentence 4 EnWG.

EnBW share and dividend policy

As a result of the small proportion of EnBW shares in free float (www.enbw.com/shareholder-structure), events on the financial markets and the development of the DAX generally only have a very minor influence on the development of the EnBW share price. The price of EnBW shares was €28.80 at the start of 2018 and stood at €29.20 by the end of the year (www.enbw.com/stock-chart).

The trust placed in EnBW by capital market participants is based on the value generated by the company. Against this background, EnBW pursues the aim of disclosing a positive internal financing capability and refraining from building up any additional net financial debt. The size of the dividend is thus also based on the amount of net investment and the retained cash flow, whereby EnBW strives to generally pay out between 40% and 60% of adjusted Group net profit. Based on the annual net loss of EnBW AG of €800.7 million and taking account of the profit carried forward of €827.8 million and the withdrawals from other revenue reserves of €252.0 million, there are retained earnings of €279.1 million for the financial year and thus dividends will be paid for the 2018 financial year. If approved by the Annual General Meeting, the dividend to be distributed for the 2018 financial year will be €0.65 per share.

Overall assessment of the economic situation of the Group

The energy sector in Germany has been experiencing profound change since 2012 due to the Energiewende. The share of electricity generation accounted for by renewable energies is increasing, driven by regulatory funding mechanisms, the trend towards decentralisation and technological advances. Nuclear electricity generation will cease by 2022. The use of fossil fuels, above all brown coal and hard coal, is currently the subject of intense political debate. Another driver of change in the energy sector are new patterns of demand amongst customers due to an increasing desire for autonomy and sustainability, as well as falling energy consumption due to improved energy efficiency. The energy landscape is becoming increasingly interconnected with other economic sectors, such as in the area of electromobility. As a consequence, energy supply companies require new business models and the revitalisation of their corporate cultures.

EnBW is well on track in its EnBW 2020 strategy to once again achieve the same level of earnings in 2020 as in 2012 – although on the basis of a realigned business portfolio. EnBW confirmed in 2018 that it had turned the corner in terms of earnings and achieved other important steps along the way to achieving the targets in the 2020 strategy.

The operating business of the EnBW Group generally developed in 2018 as expected and forecast at the start of the year. The adjusted EBITDA of the EnBW Group increased by 2.1% in comparison to the previous year. An important positive effect was the full consolidation of VNG in the second quarter of 2017, which had an impact on almost all of the segments. Adjusted for the effects of changes in the consolidated companies, the adjusted EBITDA of the EnBW Group would have stood at almost the same level as in the previous year (-0.4%). The result in the Sales segment developed negatively in the reporting year. The improved result in the Grids segment was mainly attributable to the full consolidation of VNG. In addition, there were higher earnings from the use of the electricity grids. The lower result in the Renewable Energies segment in comparison to the previous year was mainly due to the unfavourable weather conditions. The result in the Generation and Trading segment developed better than expected. This was primarily attributable to positive out-of-period earnings due to the clarification of open issues relating to electricity procurement agreements. In total, the Grids and Renewable Energies segments contributed around two thirds of the adjusted EBITDA of EnBW.

The non-operating result, which includes effects not relevant to the ongoing management of the company, decreased considerably in 2018 in comparison to the previous year. The reason for this development was a series of positive extraordinary items, such as the reimbursement of the nuclear fuel rod tax, in 2017.

In total, these developments – together with the changes in the investment result, financial result and income taxes – resulted in a Group net profit attributable to EnBW shareholders for the 2018 financial year of €334.2 million. In the previous year, the Group net profit attributable to EnBW shareholders was €2,054.1 million. Earnings per share thus fell from €7.58 in the previous year to €1.23 in 2018.

The financial position of the company remains sound. The solvency of the EnBW Group was ensured at all times throughout the 2018 financial year thanks to the company's available liquidity and the external sources available for financing. In October 2018, EnBW issued its first green bond (Glossary, p. 153) with a volume of €500 million that was very well received on the market. The key performance indicator internal financing capability stood at 93.2% in 2018 and was slightly below the target value of ≥ 100% due to a decrease in adjusted retained cash flow. The fall in the key performance indicator ROCE was mainly due to the increase in the average capital employed.

In the customers and society goal dimension, the Reputation Index of EnBW fell slightly in 2018 in comparison to the previous year, which war partly due to the reduced media presence of the themes relevant to EnBW. The satisfaction of the customers of EnBW and Yello remained at a good level but fell in 2018 due to the general trend in the sector, as well as to specific measures such as a price adjustment and a system migration. Supply reliability also remained at a similarly high level in 2018. In the employees goal dimension, the Employee Commitment Index rose due to the improved perception of the current competitiveness of EnBW and employees having greater trust in the future viability of the Group. Occupational safety noticeably improved once again at EnBW in 2018, which was demonstrated by a fall in the LTIF. In the environment goal dimension, the expansion of renewable energies is continuing according to plan. However, the CO_2 intensity (Glossary, p. 152) of own generation of electricity only fell slightly because the generation from renewable energies was impacted by the unfavourable weather conditions.

In the estimation of the Board of Management, the operating business of the EnBW Group developed satisfactorily in 2018. Overall, the operating results increased as expected, although there were deviations from the forecast in individual segments. EnBW is also generally on course in the non-financial goal dimensions. The goals being pursued by EnBW in the 2020 strategy will be achieved with a very high degree of probability.

Forecast

In our forecast we take a look, as far as possible, at the expected future growth and development of EnBW in the years 2019 to 2021.

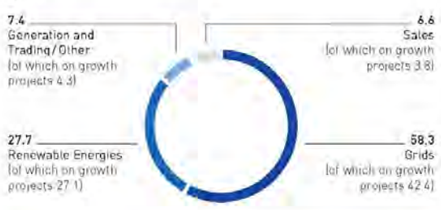
The expected economic, political and regulatory conditions are presented in the chapter "General conditions" [p. 72 ff.]. Potential factors influencing the forecast are described in detail in the report on opportunities and risks" [p. 114 ff.].

Expected trends in the finance and strategy goal dimensions

Investment over a three-year period

In order to continue to play an active role in shaping the Energiewende, **total investment** of €6.4 billion is planned for the 2019 to 2021 period. This represents on average €2.1 billion per year. Some €1.4 billion (22%) of this investment will be on existing projects and €5.0 billion (78%) on growth projects. The majority of the total investment will be made in the regulated business (Renewable Energies and Grids).

Total investment 2019–2021
in %



Around 58% of the investment will flow into the **Grids** segment, of which around 42% will be for growth projects and 16% for existing projects. In order to make the transport of renewable energies from the north to the south of Germany possible, funds have been allocated to the transmission grid for the realisation of two HVDC projects ULTRANET and SuedLink that involve our subsidiary TransnetBW and are part of the Network Development Plan [Glossary, p. 154]. In addition, extensive investment in the expansion and upgrading of the existing grids is planned.

Around 28% of the total investment will be attributable to the **Renewable Energies** segment – of which 27% will be for growth investment. This includes funds for the realisation of the offshore wind farms EnBW Hohe See and EnBW Albatros with a total output of 609 MW, which should be placed into operation in 2019. In addition, funds have been allocated for the construction of onshore wind farms to achieve the 1,000 MW target by 2020 and for solar parks from our comprehensive project pipeline [p. 50].

Around 7% of the investment will be attributable to the **Sales** segment, split about 50/50 between growth and existing investment. The growth investment is mainly intended for the expansion of electromobility, as well as for the development of energy solutions.

Around 7% of the total investment will be attributable to the **Generation and Trading** segment and **Other**. Growth investment will account for a little more than half of this amount. This mainly comprises investment relating to the invitation to tender for special technical equipment for grids.

This investment programme of the EnBW Group thus reflects our strategy for expanding renewable energies and ensuring security of supply in the regulated areas of the transmission and distribution grids.

It is expected that the target set in the EnBW 2020 strategy of making gross investment of around €14 billion in the period 2012 to 2020 (based on the reference year of 2012) will be exceeded by around €2 billion [p. 49].

In order to finance the entire investment volume of around €6.4 billion, **divestitures** amounting to almost €1 billion are planned in the years 2019 to 2021. This includes divestitures in the onshore sector, which will build on our already realised participation models. The remaining divestitures will involve the receipt of construction cost subsidies and the disposal of the remaining minority share in EWE.

It is expected that the target set in the EnBW 2020 strategy of €5.1 billion in divestitures (based on the reference year of 2012) will be slightly exceeded because divestitures of around €4.4 billion were already realised by the end of 2018 and divestitures of almost €1 billion are still planned [p. 49].

The balance from gross investment and divestitures gives the **net investment**, which is €5.4 billion or €1.8 billion on average per year. The net investment will be fully financed from the company's own funds.

Adjusted EBITDA and the share of adjusted EBITDA accounted for by the segments

Development in 2019 (adjusted EBITDA and the share of adjusted EBITDA accounted for by the segments) compared to the previous year

	Earnings performance (adjusted EBITDA) compared to the previous year		Development of the share of adjusted EBITDA for the EnBW Group accounted for by the segments	
	2019	2018	2019	2018
Sales	€225 to €300 million	€270.6 million	5% to 15%	12.5%
Grids	€1,300 to €1,400 million	€1,176.9 million	50% to 60%	54.5%
Renewable Energies	€425 to €500 million	€297.7 million	15% to 25%	13.8%
Generation and Trading	€350 to €425 million	€428.6 million	10% to 20%	19.9%
Other/Consolidation		€-16.3 million		-0.7%
Adjusted EBITDA, Group	**€2,350 to €2,500 million**	**€2,157.5 million**		**100.0%**

The presentation of the earnings performance (adjusted EBITDA) has been adjusted compared to the previous year to focus on the ongoing transformation of the portfolio at EnBW to a greater extent. The forecasted range for the earnings performance will now be presented in € million instead of as a percentage change.

In the **Sales** segment, we expect earnings in 2019 at the same level as in the previous year. Therefore, we expect a stable share of the adjusted EBITDA for the Group accounted for by this segment.

The adjusted EBITDA for the **Grids** segment will increase further in 2019. It will thus continue to be the segment with the highest earnings. In comparison to the previous year, we expect higher revenue from the use of the grids as we start to see returns on the increased investment activity in projects that are included in the Network Development Plan Electricity and Network Development Plan Gas. The share of the adjusted EBITDA for the Group accounted for by this segment is expected to remain stable.

The adjusted EBITDA for the **Renewable Energies** segment will increase significantly in 2019. In the offshore wind sector, this will be due to the planned commissioning of our offshore wind farms EnBW Hohe See and EnBW Albatros. In addition, the expansion and acquisition of onshore wind farms in 2018 and those planned in 2019, including in Sweden, will make a positive contribution to earnings. The forecast for the volume of electricity generated by the run-of-river power plants is based on the long-term average water levels. The wind-yield forecasts are also based on the long-term average. As 2018 was negatively influenced by poor wind conditions and low water levels, we expect a significantly higher result in 2019 in comparison to the previous year. We expect an increase in the share of the adjusted EBITDA for the Group accounted for by this segment.

The adjusted EBITDA for the **Generation and Trading** segment in 2019 is not expected to exceed the figure achieved in the previous year. In comparison to the previous year, we anticipate lower out-of-period earnings which will mainly be attributable to the clarification of open issues relating to electricity procurement agreements that were recognised through profit or loss in 2018. The loss of the earnings contribution made by VNG Norge AS and its subsidiary VNG Danmark ApS due to their sale in 2018 will also result in a fall in earnings. This will be offset to some extent by the fact that negative effect of the extension to the inspection of Block 2 of the Neckarwestheim nuclear power plant (GKN II) in 2018 has come to an end. We expect a slight decrease in the share of the adjusted EBITDA for the Group accounted for by this segment.

The **adjusted EBITDA** for the EnBW Group in 2019 will increase further and be between €2,350 million and €2,500 million. This will be due primarily to the areas of growth in the Grids and Renewable Energies segments. In addition, we anticipate that our efficiency target will be achieved early in 2019 with an effect to the amount of €650 million. We also expect a further increase in adjusted EBITDA for the Group in 2020, which will be supported above all by the year-round earnings contribution from the EnBW Hohe See and EnBW Albatros offshore wind farms. This means that we will not only achieve the strategic target for adjusted EBITDA in 2020 of €2.4 billion, but we even expect to exceed it.

The **EBITDA** in 2019 and 2020 will develop in line with the adjusted EBITDA. We do not make any forecasts relating to material non-operating effects.

The **EBT** relevant to remuneration will be between €850 to €950 million in 2019 as a result of the rise in adjusted EBITDA and will thus increase substantially in comparison to the previous year. A further increase in EBT is expected in 2020. The accuracy of the forecast for EBT is, however, still dependent on other exogenous factors that cannot be planned for, such as impairment losses, the reversal of impairment losses or impending losses for onerous contracts for electricity procurement agreements.

Assuming an adjusted EBITDA in the range of €2,350 million to €2,500 million, we expect to achieve an adjusted **retained cash flow** [p. 89] of between €1.3 billion and €1.4 billion. This includes an increase of €245 million from the reimbursement of the nuclear fuel rod tax. Adjusted for this effect and the anticipated dividend payment of around €320 million (including payments from investments to third parties), we expect an FFO of between €1.4 billion and €1.5 billion despite high income tax payments. A further increase in the adjusted retained cash flow is expected in 2020, which will be primarily attributable to the expected increase in the adjusted EBITDA.

Internal financing capability

Key performance indicator

	2019	2018
Internal financing capability in %	≥ 85	93.2

The internal financing capability will, as communicated, lie above 100% for the whole period from 2017 to 2020. However, it is possible that the internal financing capability may fall below 100% temporarily in individual years. We expect an internal financing capability in 2019 of ≥ 85% due to the fact that the fast growing investment volume for our EnBW Hohe See and EnBW Albatros offshore wind farms and for projects contained in the network development plans will only be partially covered by the increasing adjusted EBITDA. As things currently stand, we expect an internal financing capability of ≥ 100% once again in 2020.

ROCE

Key performance indicator

	2019	2018
ROCE in %	6.0–7.0	6.5

In the 2019 financial year, ROCE is expected to remain at the same level as in the previous year and thus be between 6.0% and 7.0%. In general, investments tend to lead at first to a fall in ROCE due to a low initial contribution to earnings. In accordance with our strategy, we also expect a high volume of investment with a further increase in earnings in subsequent years. After the commissioning of our offshore wind farms EnBW Hohe See and EnBW Albatros, we expect the ROCE to start increasing again from 2020. An increasing adjusted EBIT due to the growth in the adjusted EBITDA will be offset by a significantly higher capital employed due to planned investment.

The **ROA** will develop in line with the ROCE. In 2019, the ROA is expected to be between 4.5% and 5.5%, while we anticipate that it will increase in 2020 compared to 2019 as things currently stand.

Expected trends in the customers and society goal dimension

Key performance indicators

	2019	2018
Reputation Index	54.1	51.3
Customer Satisfaction Index for EnBW/Yello	114–141/148–159	120/152
SAIDI (electricity) in min./year	15–20	17

Reputation Index

EnBW will strive to noticeably improve its reputation continuously over the next few years, even if a decrease was recorded in 2018. The Reputation Index is an important non-financial performance indicator because this index value is influenced by a whole series of factors that are important to the future viability of our company. The existing reputation management department and the stakeholder team at EnBW that was newly established in 2017 recommend measures for optimising the reputation of the company.

Customer Satisfaction Index

We continue to expect a high level of competitive pressure in 2019 both from direct competitors within the energy industry and to an increasing extent competitors from other sectors that have already entered the energy market or will do so shortly. In addition, exogenous factors could negatively impact customer satisfaction more and more in the future, such as discussions about the future of coal-fired power generation, the development of state levies, increasing costs or delays to the expansion of the grids. To improve the satisfaction of our customers, we are thus also expanding our range of sustainable energy industry services and energy solutions and targeting our sales activities in this direction in 2019. We will combine traditional energy products (electricity and gas) with more household and energy-related products in future, to offer our customers a range of "ecosystem solutions". Using our new digital skills, we will continue to create up-to-date, convincing and tailor-made customer experiences of the highest quality. On this basis, we are striving to achieve an index value of between 114 and 141 points in the 2019 financial year.

We also want to maintain the satisfaction of Yello customers at a high level in 2019. Following the successfully completed system migration in 2018, Yello has further expanded its range of digital services and will be able to align the product portfolio even better to the requirements of its customers in future. In addition, Yello has had a new marketing campaign both on TV and online since January 2019. On this basis, we are striving to achieve an index value of between 148 and 159 points in the 2019 financial year.

SAIDI

The grid subsidiaries of EnBW have always ensured a highly reliable supply throughout their grid area and for their customers. The corresponding key performance indicator SAIDI, which states the average duration of supply interruptions per connected customer per year, stood at 17 minutes in 2018. We are striving to achieve a value of between 15 and 20 minutes in the 2019 financial year and subsequent years.

Expected trends in the employees goal dimension

Key performance indicators

	2019	2018
Employee Commitment Index (ECI)[1]	63	62
LTIF[2]	< 3.7[3]	2.3

1 Variations in the group of consolidated companies (consideration of companies controlled by the Group (without ITOs))
2 Variations in the group of consolidated companies (consideration of all employees at those companies controlled by the Group, except external agency workers and contractors)
3 Three-year target for 2017, 2018 and 2019

Employee Commitment Index

The Employee Commitment Index (ECI) increased from 60 to 62 points in 2018. The implementation of the 2020 strategy is well on track and the perception of the competitiveness and future viability of the Group has significantly improved once again. Overall, employee commitment is at a very satisfactory level. Therefore, EnBW has set itself the target of maintaining this level in 2019 and further increasing the ECI to 63 points.

LTIF

Our goal is to continuously improve occupational safety within the company for both our own and third-party employees. Therefore, EnBW has implemented numerous accident prevention measures. In 2019, we are striving to once again keep the value for this key performance indicator for occupational safety below the three-year target. The main focus will be placed on the roll-out of the new Quentic software and a heightened awareness for unsafe situations and conditions. Consistent reporting of these types of occurrences and communication amongst employees about hazardous situations will help EnBW to increase the awareness of employees. EnBW intends to lower the LTIF in small steps in the long term.

Further significant developments

In view of the difficult conditions, it will be important over the coming years to realise further improvements in efficiency across the entire company. There will be a moderate increase in the number of employees in the Renewable Energies and Grids segments as part of the repositioning of our business portfolio. This will be offset by further measures to optimise processes across the entire company with a focus on the functional units, sales and operations of EnBW AG and in the area of thermal power plants.

Expected trends in the environment goal dimension

Key performance indicators

	2019	2018
Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	4.4–4.5/31–32	3.7/27.9
CO_2 intensity in g/kWh	-10% to 0%	553

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

The installed output of renewable energies in 2019 is expected to increase by between 700 and 800 MW, primarily as a result of the commissioning of the EnBW Hohe See (497 MW) and EnBW Albatros (112 MW) offshore wind farms in the North Sea. As a result, the share of the generation capacity of the Group accounted for by renewable energies will increase appreciably. In subsequent years, we also expect a continuous increase in the installed output of renewable energies. This will also increase the share of the generation capacity accounted for by RE further.

CO_2 intensity

In 2019, we expect an increase in own electricity generation from renewable energy sources due to the further expansion of renewable energies. We also expect the continued good availability of our highly efficient hard coal power plants this year. Important factors for uncertainty in the 2019 forecast include the volatility of the wind and water supplies, the further development of the clean dark spread (Glossary, p. 152) and the utilisation of the power plants for redispatch. We anticipate a positive development overall and expect a reduction in the CO_2 intensity (Glossary, p. 152) of between -10% and 0% in 2019 in comparison to the 2018 reporting year. In the next few years, we expect that the CO_2 intensity will continue to reduce gradually.

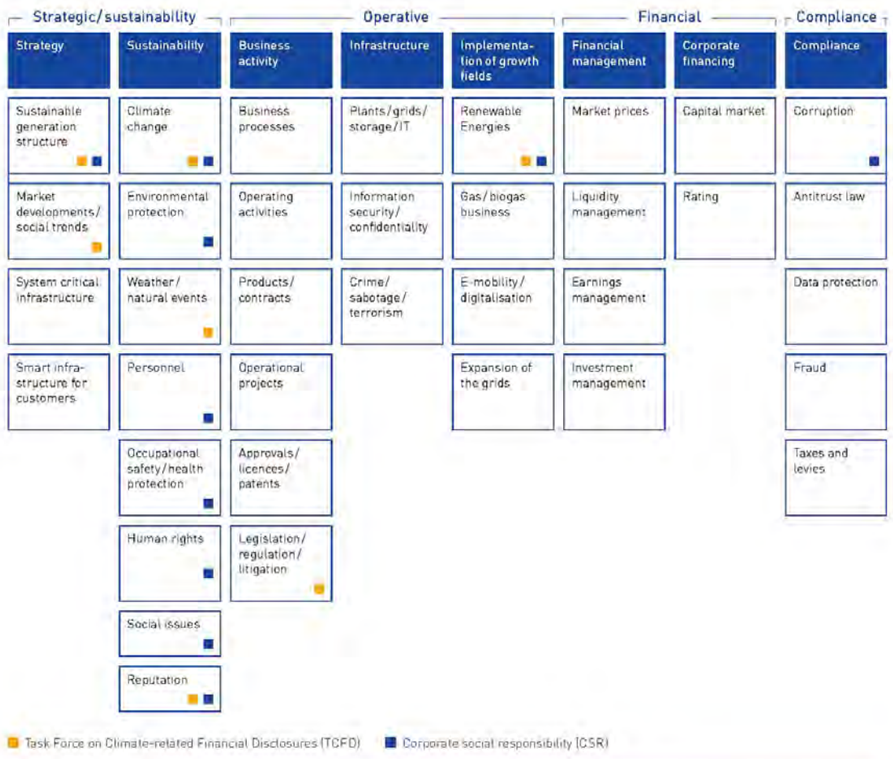
Overall assessment of anticipated developments by the management

We expect an increase in adjusted EBITDA for the Group in 2019 compared to 2018. The shift in earnings between the segments laid out in our strategy will continue in 2019. We are well on the way to achieving our 2020 targets at a Group and segment level. We are adhering to the implementation of our divestiture programme and are able to continue to make sufficient investment funds available to enable us to play an active role in shaping the Energiewende. This also supports our aim to maintain a solid investment-grade rating (Glossary, p. 154). With respect to our non-financial key performance indicators, we expect a stable to positive development in 2019 towards our 2020 targets.

Report on opportunities and risks

Principles of the integrated opportunity and risk management system

Opportunity and risk map



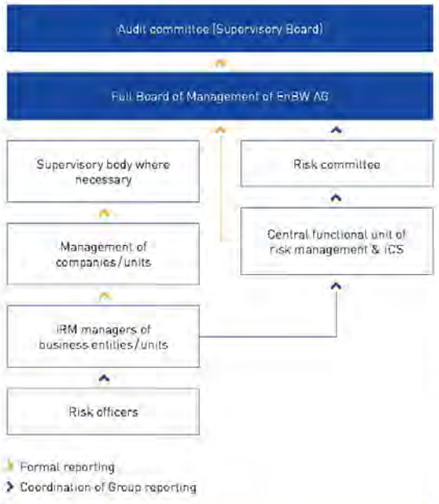
The integrated opportunity and risk management system (iRM) of EnBW is based on the internationally established COSO II framework as a standard for risk management systems that span entire companies. The iRM aims, through a holistic and integrated approach, to effectively and efficiently identify, evaluate and manage opportunities and risks (including monitoring) and report on the opportunity/risk position, as well as to ensure the appropriateness and functionality of related processes. Risk management involves measures for avoiding, reducing or transferring risk through adequate accounting provisions, as well as measures for managing risk tolerance. For this purpose, EnBW defines an opportunity/risk as an event that might cause a potential over-attainment/non-attainment of strategic/sustainability, operational, financial and compliance goals in the future. The iRM process also takes into account the guidelines for a non-financial declaration. In order to identify and categorise opportunities and risks, the opportunity and risk map that is anchored throughout the Group is utilised. The risk map is used to explicitly consider possible opportunities and risks that affect the sustainable orientation of EnBW. As well as focusing on the fulfilment of the requirements for a non-financial declaration, the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, p. 155) were also taken into account. In addition, the efficiency of the entire iRM processes and reporting was increased further. Amongst other things, this involved further improving the technical aspects of reporting and optimising the process for identifying and evaluating opportunities/risks. In addition, the iRM process was also subject to ongoing development within the scope of digitalisation.

Structure and processes of the integrated opportunity and risk management system

The structures and processes of the iRM are anchored throughout the Group in all relevant business entities, business units and functional units. The central risk management & ICS functional unit is responsible for specifying methods, processes and systems for the whole Group, determining the opportunity and risk position of the Group and for reporting. The central steering body is the risk committee, which – with the involvement of specially selected business units/entities – is responsible for clarifying relevant issues from various Group perspectives, as well as for determining the top opportunities/risks.

The iRM is regularly checked by the Group auditing department and the results of the audit are presented to the Supervisory Board.

Structure and processes of the iRM system



For the purposes of evaluation, all opportunities and risks are firstly assessed with the help of the iRM relevance filter before and after consideration has been taken of both implemented and envisaged management instruments. The relevance class is determined in each case based on quantitative and qualitative criteria for each of the four dimensions: strategic/sustainability, operational, financial and compliance.

The opportunities and risks allocated to relevance class 5 or higher and with a probability of occurrence of over 50% are generally included in the Group report on opportunities and risks. Insofar as a financial evaluation is possible, this corresponds to a value of €50 million within the medium-term planning period. Long-term opportunities and risks that are of particular importance are then added. The reports are submitted on a quarterly basis in standardised form. In the case of any significant changes, a special report is immediately issued.

The probability of occurrence is split into six levels:

iRM levels for the probability of occurrence

Description	Level for the probability of occurrence
Very low	0% to 10%
Low	> 10% to 30%
Medium	> 30% to 50%
High	> 50% to 70%
Very high	> 70% to 90%
Almost certain	> 90% to 100%

Those opportunities or risks relevant to the Group report on opportunities and risks are generally evaluated in relation to the current planning period using quantitative methods (e.g. scenario techniques and distribution functions) for the purpose of stochastic modelling. Any possible effects on the adjusted EBITDA, the adjusted EBIT and the capital employed (with any associated impact on the ROCE), the retained cash flow or the adjusted retained cash flow and net investment (with any associated impact on the internal financing capability) are considered. Alongside these financial effects, opportunities and risks can also have impacts on the other key performance indicators (p. 51 ff.), which are discussed with those responsible in the specialist areas.

Any opportunities and risks with a probability of occurrence of up to 50% are subject to an individual review to determine whether they should be taken into account in the next planning session. Opportunities and risks with a probability of occurrence of over 50% are generally taken into account in the planning process and, as far as possible, appropriate accounting measures are taken in the consolidated financial statements in accordance with IFRS.

Alongside the top opportunities/risks, there are a wide variety of other opportunities and risks facing the Group that are allocated to relevant risk categories on the opportunity and risk map (p. 114) and evaluated with the aid of the iRM relevance filter. Alongside the key performance indicators in the finance and strategy goal dimensions, these effects can also have an impact on the key performance indicators in the customers and society, employees and environment goal dimensions. Any impact on the areas of compliance, social engagement and procurement is also examined in the process.

Relevance filter for classifying opportunities and risks

	Strategic/sustainability	Operative	Financial	Compliance	Reporting level
	Achievement of strategic targets, sustainability targets, e.g. climate protection, environmental protection, reputation	Achievement of business targets, functional processes, retaining added value, customer/external effects	Achievement of financial targets, generally in accordance with medium-term planning or approved (project) budgets	Compliance with legal/official regulations and internal regulations	
	Relevance class 0				Company, business and functional unit
	None	None	None	None	
	Relevance class 1				
	No relevant impact on the achievement of strategic/sustainability targets	› One operational target for an internal department/area is not achieved › Short-term negative impact on a relevant process without a material effect on the maintenance of operations	≤ €0.2 million	Breach of legal/official regulations and/or internal regulations with minor negative consequences for the department/area (trivial breaches)	
	Relevance class 2				
	The ability to achieve the strategic/sustainability targets of the company/business units/functional units is negatively impacted	› Several operational targets for an internal department/area are not achieved › Short-term negative impact on a relevant process with maintenance of operations negatively impacted	≥ €0.2 million (relevance threshold for small companies/business units)	Breach of legal/official regulations and/or internal regulations with negative consequences for the department/area	
	Relevance class 3				
	One strategic/sustainability target for the company/business units/functional units is not achieved	› One operational target for the company/business units/functional units is not achieved › Long-term negative impact on one/multiple relevant process(es) with maintenance of operations severely impacted	≥ €1 million (relevance threshold for medium-sized companies/business units)	Breach of legal/official regulations and/or internal regulations with negative consequences for the company/business units/functional units	
	Relevance class 4				
	Several strategic/sustainability targets for the company/business units/functional units are not achieved	› Several operational targets for the company/business units/functional units are not achieved › The value added of the company/business units/functional units is massively disrupted	≥ €5 million (relevance threshold for large companies/business units)	Breach of legal/official regulations and/or internal regulations with serious negative consequences for the company/business units/functional units	
	Relevance class 5				Group
	One strategic/sustainability target for the EnBW Group is not achieved	› One key operational target for the EnBW Group is not achieved › The value added is massively disrupted across the company/business units/functional units	≥ €50 million (relevance threshold for functional units and EnBW Group)	Breach of legal/official regulations and/or internal regulations with negative consequences for the EnBW Group	
	Relevance class 6				
	Several or all strategic/sustainability targets for the EnBW Group are not achieved	› Several or all operational targets for the EnBW Group are not achieved › Value added throughout the whole Group is massively disrupted	≥ €250 million	Breach of legal/official regulations and/or internal regulations with serious negative consequences for the EnBW Group	

Non-financial declaration

As part of the non-financial declaration, EnBW closely analyses the opportunities and risks for compliance, social engagement, procurement, the customers and society goal dimension, the employees goal dimension and the environment goal dimension. In order to guarantee that the requirements for a non-financial declaration are fulfilled, the iRM established across the Group and the associated process are used. From relevance class 5 and a probability of occurrence of over 50%, opportunities and risks are also reported externally. In this context, the iRM also identifies opportunities and risks relating to climate protection and thus provides important impetus for the implementation of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, p. 155). You can find further information on this subject on p. 136.

Structure and processes of the accounting-related internal control system

Principles

Alongside the internal control system (ICS) that is anchored within the company's business processes via the iRM, an accounting-related ICS was established at EnBW that is designed to ensure proper and reliable financial reporting. In order to guarantee that this ICS is effective, the appropriateness and functionality of the Group-wide control mechanisms are tested regularly at an individual business entity and Group level.

If any existing weaknesses are identified in the control system and are considered relevant to the financial statements, they are promptly remedied. This accounting related ICS methodology is based on the COSO II standard – an internationally accepted framework for internal control systems.

Once the control mechanisms have reached a standardised and monitored degree of maturity, and no material control weaknesses can be identified, the accounting-related ICS is deemed to be effective. The materiality of control weaknesses is measured as the probability of occurrence and the extent to which there could be a potential misstatement in connection to those financial statement items concerned. The accounting-related risk management system defines measures for identifying and assessing risks that jeopardise the preparation of compliant financial statements as part of the accounting-related ICS.

Despite having established an ICS, there is no absolute certainty that it will attain its objectives or that it will be complete. In individual cases, the effectiveness of the ICS can be impaired by unforeseeable changes in the control environment, fraud or human error.

Structure

The accounting-related ICS at EnBW is organised at both a centralised and decentralised level. All important business entities, business units and functional units have an ICS officer. These officers monitor the effectiveness of the ICS and evaluate any control weaknesses that may arise. A report on the effectiveness of the ICS is prepared on an annual basis, which is approved by the management of the business entity or unit. The ICS officer at Group level assists the business entities/units with the implementation of standardised procedures and also consolidates collected data.

Processes

Standardised procedures ensure completeness and consistency in the preparation of the financial statements and financial reporting. The accounting-related ICS defines controls designed to ensure compliance with the accounting policies used by the Group, as well as procedures and deadlines for the individual accounting and consolidation processes. During the Group consolidation process, the rigorous implementation of the four-eye principle is observed, while random samples and deviation analyses improve quality. An annual control cycle monitors whether the documentation is up to date and also checks the appropriateness and functionality of the controls. In addition, it identifies and evaluates any control weaknesses that may arise.

A risk-based selection process defines relevant business entities/units, significant items in the financial statements and processes including their associated control measures. This selection process is based on quantitative and qualitative risk indicators.

Phases of accounting-related ICS

The defined processes and controls are recorded in a central documentation system. The effectiveness of the various control activities is then assessed. This includes analysing whether the control activities are generally appropriate for the purpose of reducing the risk of erroneous financial reporting. In addition, regular monitoring of the implementation of the controls and their documentation is carried out to review the functionality of the defined controls, as well as the operational effectiveness of the processes. If any control weaknesses are identified, their effect on the financial statements is evaluated. The results are reported at both a business entity or unit level and at a Group level. Furthermore, the Group auditing department performs ICS reviews as part of its risk-oriented audit planning.

Risks associated with the non-financial declaration

The non-financial declaration describes, amongst other things, the fundamental opportunities and risks connected with the EnBW business model and the activities based upon it that could have a possible impact on any individual issue. Material individual risks with a very high probability of a serious negative impact in relation to any of the following issues do not exist at EnBW.

Compliance

The observance of relevant legal regulations and internal company rules forms the basis of our business activities. Managing compliance risks at EnBW (with a main focus on corruption, antitrust and data protection risks) is the responsibility of the compliance management system, which comprises regular risk assessments of this type. Risks related to fighting corruption and bribery are addressed on p. 57 f. in a cross-segment manner.

Social engagement

There are no risks in the area of social engagement. In fact, we take our social responsibility for civic and social engagement seriously (p. 61 f.).

Procurement

Sustainable procurement – purchasing: In the area of procurement, risks cannot be excluded due to increasing levels of complexity and the large number of suppliers. Purchasing utilises an active risk management system, counters procurement risks and implements the necessary measures for safeguarding against and avoiding risk. These risks are managed using defined processes and, in this context, especially through the pre-qualification process (p. 69 f.).

Raw materials procurement – coal and gas: In the area of raw materials procurement and thus in the associated supply chain, there are above all potential human rights risks. Respect for human rights is ensured using a multi-stage auditing process as part of the procurement process – with all existing and potential suppliers being regularly subjected to a screening process. Other measures that form part of the assessment are carried out in direct cooperation with the compliance department. In coal mining, there are possible human rights risks related to the working and living conditions of people in the coal mining regions. Increasing civil society activity in this context can in turn increase reputational risks. EnBW is in constant contact with representatives from civil society and keeps them informed about the advances made and challenges faced in all sustainability topics (p. 70 f.).

In preparation for future (liquid) gas contracts, EnBW has carried out further preliminary human rights assessments as part of the audit of business partners. No material human rights risks were identified in the supply chain for the USA as a potential supply country, while further in-depth analyses may be required for other business partners.

Customers and society goal dimension

Reputation: All opportunities and risks, as well as non-financial issues, can have a positive or negative impact on reputation and thus on the key performance indicator Reputation Index (p. 94). The reputation management department thus identifies opportunities and risks related to reputation, develops measures to protect and improve reputation, advises the Board of Management and management and provides recommendations for action.

Customer proximity: Risks exist especially in connection with the still high level of competitive pressure both from direct competitors within the energy industry and, to an increasing extent, competitors from other sectors that have already entered the energy market or will do so shortly. This is associated with the risk of a negative impact on the customer base and sales volumes. Opportunities exist above all through the provision of a broader range of customer-specific products and services such as offering hardware bundles (Glossary, p. 152) and product options, as well as through processes more oriented to the customer. EnBW will also continue to expand its range of sustainable energy industry services and energy solutions in 2019 and will target its sales activities in this direction (p. 112).

Employees goal dimension

Employee commitment: Due to competition on the job market, there is a risk when recruiting employees that the company will not be able to secure a sufficient number of employees with the necessary qualifications and expertise in the relevant target groups. In addition, this risk is exacerbated by demographic trends and the stricter conditions facing the energy industry. We believe that regular anonymous employee surveys, from which we derive the Employee Commitment Index (ECI) as a key performance indicator, are an important tool for seizing opportunities early in the areas of employee development and employee loyalty (p. 96 ff.).

Occupational safety: Risks generally exist in the areas of occupational safety and health protection in our business activities. The EnBW Group counters these risks using comprehensive organisational and procedural measures, such as workplace-specific hazard analyses, to protect employees as well as possible against any adverse consequences. EnBW also views these measures as an opportunity to preserve the capacity of its employees to do their work and to maintain the position of EnBW as an attractive employer. Occupational safety is measured in the form of the key performance indicator LTIF within the employees goal dimension (p. 100 f.).

Environment goal dimension

Expansion of renewable energies: In relation to the expansion of renewable energies, there is a general risk posed by the auction process and thus the sluggish expansion of onshore wind power. Due to the fact that the auctions are held on equal terms, we continue to expect a high level of competition. We measure the expansion of renewable energies with our key performance indicator "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" (p. 102).

Climate protection: Risks generally exist in the area of environmental protection due to the operation of power generation and transmission plants and the possible consequences for the air, water, soil and ozone layer. The importance of climate protection is taken into account in, amongst other things, the key performance indicator CO_2 intensity (Glossary, p. 152) (p. 103).

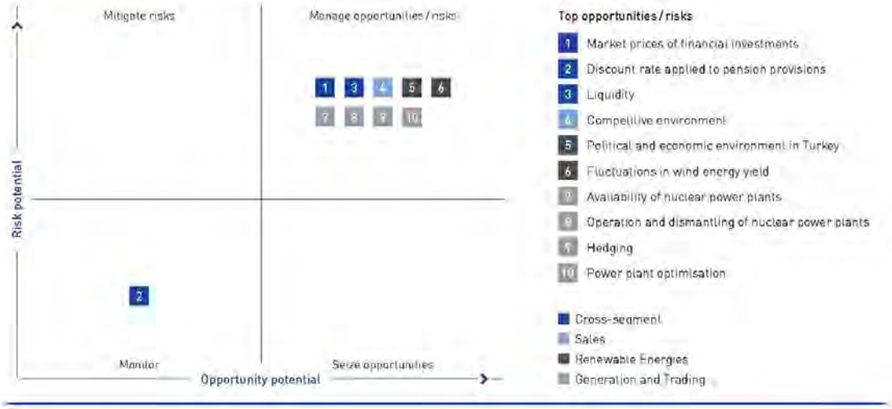
EnBW counters these risks using, amongst other things, an environmental management system certified according to DIN ISO 14001, which has been established at key subsidiaries (p. 101). EnBW takes the safety of the population and the protection of the environment very seriously. In this context, risks also exist due to external circumstances, such as extreme weather conditions. These risks are countered by EnBW using an emergency and crisis management system that has been implemented throughout the Group and includes comprehensive organisational and procedural measures. EnBW ensures that the risks posed by crisis and emergency situations are mitigated quickly, effectively and with a coordinated approach through the use of regular crisis management exercises and other measures. Through its diverse range of activities in the areas of environmental, nature and species protection, EnBW also utilises the opportunity – beyond its core activities – to make a substantial contribution to improving environmental protection. Thanks to the positive public perception of these activities, they can also have a positive impact on our key performance indicator Reputation Index (p. 94).

At the same time, EnBW also faces potential risks due to the ongoing process of climate change. For example, more frequent extreme weather conditions leading to highly fluctuating water levels or limits being placed on emissions locally could have an especially negative impact on the operation of power plants and thus the security of supply (electricity grids). The operation of hydropower plants can be restricted by both a lack of or also an abundance of water. The output from thermal power plants that must be cooled could possibly be impacted by temperature limits on discharged water. Increasing volatility in the availability of wind, water and sun presents challenges in terms of planning certainty for the operation of power plants and the sale of volumes of electricity (p. 49 ff.). For this reason, the top opportunity/top risk wind fluctuations has been reported since the Integrated Annual Report 2016, although these opportunities/risks have no material effect on non-financial issues. In addition, there is uncertainty due to increasing environmental restrictions for the realisation of projects for sustainable energy generation and for the operation of power plants. These risks are managed and mitigated in internal processes using targeted control measures.

Alongside changes in physical climate parameters and other developments relating to or governed by environmental factors, regulatory guidelines and changes in the market also flow into the risk evaluation process. However, there are also opportunities such as changing customer needs (p. 94 ff.) and an increasing demand for climate-friendly products such as e-mobility. These opportunities and risks are regularly and systematically identified Group-wide. The first recommendations from the Task Force on Climate related Financial Disclosures (TCFD) (Glossary, p. 155) have been implemented and are communicated in the report on opportunities and risks. Building on the revision of the risk map in 2016, special focus will be placed on sustainability aspects – especially climate protection targets – and they will be anchored more deeply in the risk evaluation process in future.

Opportunity and risk position

Top opportunities/risks as of 31/12/2018



The diagram illustrates how the opportunity and risk position is reported to the Board of Management and the audit committee of the Supervisory Board. The arrangement of the top opportunities/risks in the quadrants indicates whether EnBW can employ control measures to exploit the opportunities or to counteract the risks.

On the basis of the individual evaluation of the top opportunities/risks, it is clear – based on the relative level of opportunity/risk – what effects they could likely have on the adjusted EBITDA, adjusted EBIT, capital employed, retained cash flow or adjusted retained cash flow and net investment. The risks are depicted after the implementation of the risk limitation measures.

No new material opportunities and risks emerged in 2018.

Details on the top opportunities/risks, as well as other opportunities/risks relevant to the report, and their potential effects on the relevant performance indicators are listed in the following section.

Cross-segment opportunities and risks

EnBW faces general **risks from legal proceedings** due to its contractual relationships with customers, business partners and employees. To a lesser extent, we are also conducting legal proceedings relating to topics in the area of corporate law. For this purpose, adequate accounting provisions are made or, in the event of a probability of occurrence of < 50%, adequate contingent liabilities. As a consequence, there is also an opportunity of positive effects on earnings if these provisions can be reversed once again. In addition, various court cases, official investigations or proceedings and other claims are pending against EnBW. The probability of these actions being successful is, however, considered very low and thus they are not reported under contingent liabilities and other financial obligations.

In connection with these types of legal proceedings, we also recognise the **water concession risk in Stuttgart**. In the court proceedings dealing with the takeover of the water grid after the water concession in the state capital Stuttgart expires, EnBW is still striving to reach an amicable settlement. The court proceedings have been suspended several times, namely from January 2015 until the end of 2016 and from April 2018 until the end of January 2019, to give the parties the opportunity to reach an amicable settlement. Unfortunately, it was not possible to reach such an agreement due to a difference of opinion on the valuation. The next negotiations are expected to be held in September 2019. Therefore, there continues to be a risk in 2019 of losing the water grid without receipt of adequate compensation.

Strategic opportunities and risks

Participation models (previously the top opportunity/risk "Participation models and divestitures"): Opportunities and risks exist due to surplus or reduced revenue, as well as time delays, in the investment and divestiture portfolio. The majority of the planned divestitures have now been implemented. Opportunities and risks exist for the years 2019 and 2020 that could have an impact on net investment and thus on the key performance indicator internal financing capability, insofar as the actual income from the participation models and divestitures does not meet our medium-term planning goals. We currently identify a balanced level of opportunity and risk in this area.

Financial opportunities and risks

1 **Market prices of financial investments:** The financial investments managed by the asset management system (Glossary, p. 152) are subject to opportunities and risks due to price changes and other valuation changes as a result of the volatile financial market environment (p. 84). A significantly higher amount of securities allocated to the dedicated financial assets must, since 2018, be measured at fair value through profit or loss in accordance with IFRS 9. The fluctuation in the value of these securities is recognised in profit or loss and stood at €-38.5 million in the reporting year. Through corresponding effects, this could have both a positive and negative impact in 2019 and 2020 on net debt in the low to mid three-digit million euro range. For the market prices for financial investments, we currently identify an equal level of opportunity and risk due to the increased volatility on the financial markets.

2 **Discount rate applied to pension provisions:** There is a general opportunity and risk due to any change in the discount rate applied to the pension provisions because the present value of the pension provisions falls when the discount rate increases and increases when the discount rate falls. At the end of 2018, the discount rate remained unchanged from the previous year at 1.8%. The future development of interest rates could have a positive impact in the low three-digit million euro range or a negative impact in the low four-digit million euro range on net debt in 2019 and 2020. Against the background of the expected development of interest rates in future, we currently identify a balanced level of opportunity and risk in this area.

3 **Liquidity:** Due to unforeseeable developments, especially margin payments, unused project funds or tax issues as well as financial market crashes, the Group's liquidity planning is subject to uncertainty that could lead to deviations between actual payments and planned payments. In general, there is also a risk of additional liquidity requirements if the rating agencies downgrade the credit rating of EnBW (p. 87). The risk of margin payments is increasing primarily as a result of rising trading volumes, increasing market prices and greater volatility on the energy market. Overall, these effects could have an indirect positive or negative impact in the mid three-digit million euro range on the key performance indicator ROCE in 2019 and 2020. We currently identify a balanced level of opportunity and risk in this area.

Compliance opportunities and risks

Compliance risk assessments focus, in particular, on assessing risks and defining appropriate preventative measures in the compliance risk areas of corruption, antitrust law and data protection.

Risks for which EnBW derives measures for fighting corruption and bribery primarily exist in sales activities relating to local authority/political business when dealing with public officials. Important preventative measures, especially training and advisory services, are described on p. 57 f.

In addition, there are antitrust risks in the sales activities of some subsidiaries that could result in fines and damage reputation and also have significant strategic implications. This risk is countered by the joint preventative measures of the compliance and legal departments.

The incorrect handling, or illicit disclosure or use, of personal data poses data protection risks. This risk exists in view of the digital transformation of many business activities. Advisory and awareness services and process controls are in place to guarantee adherence to legal data protection requirements in the Group. Company-specific measures are coordinated via the compliance and data protection department.

Sales segment

Financial opportunities and risks

A **Competitive environment:** There is a risk that the continued tense competitive situation for all EnBW brands in the electricity, gas and energy solutions business could have a negative effect on the customer base, sales volumes and price levels. There is still a willingness amongst customers to switch suppliers and the pressure on prices remains. The EnBW 2020 strategy also covers the development and expansion of system solutions and complete solutions that are specifically tailored to the various customer segments (p. 48 ff.). Alongside the traditional supply of electricity and gas, EnBW sees good opportunities here also for offering its customers innovative energy solutions in the areas of energy technology in the home, e.g. with products such as photovoltaic storage systems, the area of corporate energy efficiency and also electromobility (p. 94 ff.). The aim is to generate corresponding earnings contributions for EnBW. This could result in both a positive or negative effect in 2019 and 2020 on the key performance indicator adjusted EBITDA in the low single-digit million euro range. We currently identify a low level of opportunity and risk in this area.

Grids segment

Strategic opportunities and risks

Recognition of costs for high-voltage direct current (HVDC) transmission technology: TransnetBW plans to set up new connections using high-voltage direct current transmission technology (HVDC) (Glossary, p. 153) with other transmission system operators. A regulation stipulating the use of underground cabling also applies to the SuedLink project. In both projects, there are currently general risks of potential delays and additional costs, as well as a low level of risk that the necessity for these transmission lines might no longer be confirmed in a new Network Development Plan.

Financial opportunities and risks

Year-end balance on the EEG bank account: The EEG bank account is a separately managed bank account in accordance with section 5 of the German Compensation Mechanism Ordinance (AusglMechV) and is thus kept separate from other areas of activity. In accordance with AusglMechV, a deficit or surplus on the account balance can have a temporary positive or negative effect on the calculation of the net debt of EnBW, respectively. As of the reporting date on 31 December 2018, there was a surplus in the mid three-digit million euro range on the EEG bank account of our subsidiary TransnetBW. Due to the EEG cost allocations (Glossary, p. 153) defined for 2019, we anticipate a positive value for the bank account for 2019.

Renewable Energies segment

Strategic opportunities and risks

5 **Political and economic environment in Turkey:** EnBW has been commercially active in Turkey for many years in the expansion of energy generation from wind power and hydropower. In the past few years, the economic and political framework conditions in Turkey have deteriorated noticeably. EnBW is continuing to monitor these developments very closely, especially because it has a duty of care for those employees working in Turkey. There has been an increased security risk for a number of years, although no immediate risk to local employees can currently be identified. EnBW is still in regular contact with the German embassy, the German Consulate General, our partner Borusan and other German companies active in Turkey so that it will be able to identify any negative developments as early as possible and respond in good time.

Financial opportunities and risks

4 **Fluctuations in wind energy yield:** There is a general opportunity or risk for wind power plants due to wind fluctuations because the amounts of electricity generated by them are subject to fluctuations in the mean annual wind speed. In order to take these wind fluctuations into account in our planning, wind reports were created. In addition, measurement campaigns are being carried out up to the end of 2020 to evaluate wind speeds. Nevertheless, wind fluctuations could by their nature have a positive or negative effect on the key performance indicator adjusted EBITDA and on the key performance indicator internal financing capability in the low double-digit million euro range in 2019 and 2020. We currently identify a generally lower level of opportunity and risk in this area.

Generation and Trading segment

There are general risks associated with the operation and dismantling of nuclear power plants.

During the dismantling of nuclear power plants, there is an additional risk of a delay in the return of waste to the local **intermediate storage facilities**, with possible additional costs as a result of the waste being stored for a longer period of time in Great Britain and France, as well as the risk of further costs for approval and authorisation procedures.

At the end of 2018, the remaining provisions held by EnBW were revalued as part of the regular examination of the discount rate and escalation rate. Due to changes in these kinds of assumptions in the future, we currently identify a low level of opportunity and risk for the remaining **nuclear provisions**. Depending on market developments and the framework conditions related to the Energiewende, there is a general risk of a negative impact on earnings due to **impairment losses on power plants and impending losses for onerous contracts for electricity procurement agreements**.

Operative opportunities and risks

7 **Availability of nuclear power plants:** There is a general risk that exogenous and endogenous factors will have an influence on the availability of power plants. We strive to counter these risks using preventive measures. Depending on their duration, interruptions to the operation of the power plants can positively or negatively impact the operating result. In the first half of 2019, the risk of a temporary shutdown of KKP 2 will increase due to the upgrading of the reactor building crane. The availability of the nuclear power plants could have a positive or negative impact in the low double-digit million euro range in 2019 and a positive impact in the low single-digit million euro range or a negative impact in the low double-digit million euro range in 2020 on the key performance indicator adjusted EBITDA and the key performance indicator internal financing capability. We currently identify a relatively low level of opportunity and risk in this area.

8 **Operation and dismantling of nuclear power plants:** At the two power plant blocks GKN 1 and KKP 1, there is a possibility of delays and additional costs due to an increase in complexity and expenses during the dismantling and disposal process. Deadlines and costs are being permanently monitored and controlled within a strategic dismantling project. This could result in opportunities and risk with an effect on the net debt in the mid double-digit million euro range in 2019 and 2020. We currently identify a relatively low level of opportunity and risk in this area.

Financial opportunities and risks

9 **Hedging** (Glossary, p. 153): When selling generated electricity volumes, EnBW is exposed to the risk of falling electricity prices and the risk of the unfavourable development of fuel prices in relation to electricity prices. The concept underlying our hedging strategy not only limits risk but also seeks to exploit opportunities. The hedging instruments utilised in 2018 were forwards, futures and swaps. The EnBW Group has exposure to foreign exchange risks from procurement and the hedging of prices for its fuel requirements, as well as from gas and oil trading business. This could have a positive effect in 2020 on the key performance indicator adjusted EBITDA and on the key performance indicator internal financing capability in the mid double-digit to low three-digit million euro range. We currently identify a high level of opportunity for 2020 in the area of hedging due to increasing fuel and CO_2 prices. Further information can be found in the section "Accounting for financial instruments" in the notes to the consolidated financial statements (www.enbw.com/report2018-downloads).

10 **Power plant optimisation:** Following the conclusion of the hedging of generation activities, the trading business unit will manage the further deployment of the power plants. This is being carried out as part of power plant optimisation on the forward market (Glossary, p. 153), through the sale of system services (Glossary, p. 154) and through placements on the spot and intraday trading platforms (Glossary, p. 154). However, regulatory interventions continue to have a strong influence. In particular, fluctuating revenues from system services and volatility on the forward and spot markets (Glossary, p. 153, 154) could have a positive or negative effect on the key performance indicator adjusted EBITDA in 2019 and 2020 in the low double-digit million euro range. We currently identify a low level of risk and opportunity that is dependent on the development of market prices.

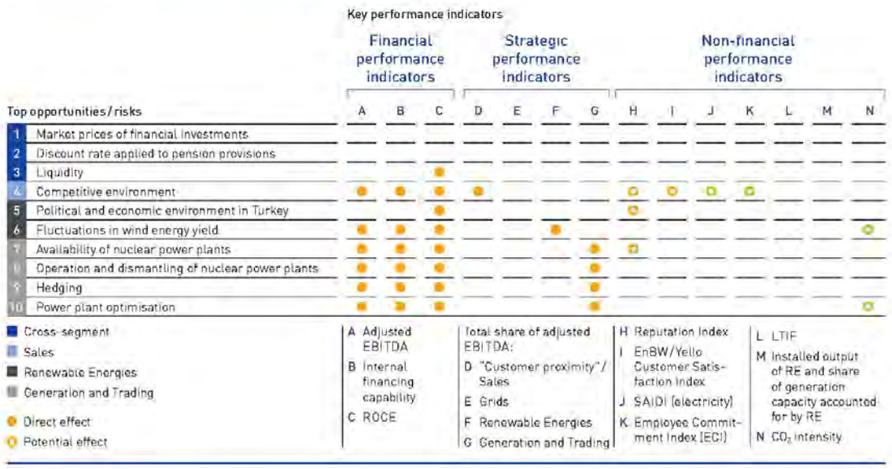
Compared with the previous year, the following opportunities and risks were either eliminated or will no longer be included in the Group reporting due to their low level of relevance:

Unplanned shutdown of GKN II: The maintenance work has been completed. This risk – which was reported during the course of the year – thus no longer exists.

Link to the key performance indicators

The top opportunities/risks can have an impact on our key performance indicators, whereby the effects on the non-financial key performance indicators are potential in nature and have thus been shown less boldly in the following diagram. In the past financial year, these links were not monitored individually.

Linking the top opportunities/risks with the key performance indicators



Overall assessment by the Group management

The risk situation for the EnBW Group increased slightly in 2018. Changes to the framework conditions for the entire sector of energy companies are continuing. Uncertainties with respect to risk potential and payment flow have reduced. Due to higher fuel prices and a recovery in the CO_2 prices, 2018 was thus also characterised by an upwards trend in electricity prices. EnBW still faces numerous factors that pose a danger to planning certainty and thus the achievement of its economic targets, and that have high risk potential, such as regulatory requirements and laws dealing with sustainable energy generation. This has far-reaching consequences for the operating business of the EnBW Group and places a burden on its earnings potential.

The persisting competitive and market risks could influence the operating result, financial position and net assets. At the same time, the Energiewende offers a multitude of opportunities to develop new models for future business segments. We will resolutely pursue these with our revised post 2020 strategy – which is based on the EnBW 2020 strategy that has been successfully implemented up to now. For example, the EnBW Group believes there are opportunities in a diverse range of customer-oriented measures such as innovative energy solutions in the areas of energy technology, e.g. photovoltaic storage systems, corporate energy efficiency and electromobility. The commercial development of environmentally friendly and CO_2-efficient energy solutions will be resolutely pushed forward. The implementation of our post 2020 strategy aims to secure the future viability of the company and tap into this potential for growth.

Some risks that exist or existed for EnBW have reduced or been eliminated during the course of 2018. However, additional risks have also emerged or were exacerbated. No risks currently exist that might jeopardise the EnBW Group as a going concern.

Opportunity and risk position 2018

Remuneration report

The remuneration report summarises the principles relevant for determining the remuneration of the members of the Board of Management and explains the structure and level of both Board of Management and Supervisory Board remuneration.

The remuneration report takes the recommendations of the German Corporate Governance Code (DCGK) and the German Accounting Standard (GAS) 17 (amended in 2010) into consideration in this respect. It also contains disclosures required by German commercial law included in the notes pursuant to section 314 of the HGB and the management report pursuant to section 315 HGB.

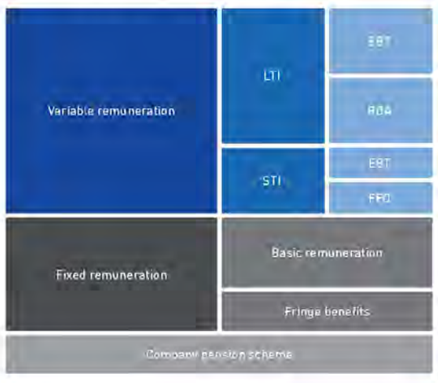
Board of Management remuneration

Based on proposals of the personnel committee, the Supervisory Board passes resolutions on the remuneration of the Board of Management, including the main contract elements, and reviews it on a regular basis. The criteria for determining appropriate remuneration include the responsibilities and performance of the members of the Board of Management, the economic situation, the success and sustainable development of the company and the relationship between the remuneration of the Board of Management and the remuneration of senior management and the workforce as a whole, as well as its development over time.

The current version of the Board of Management remuneration system has been valid since 1 January 2018.

The following diagram shows the structure of the total remuneration:

Components of the target remuneration



The remuneration in 2018 comprises basic remuneration, one-year and multi-year variable remuneration, as well as contributions as part of the company pension scheme. The ratio of single-year to multi-year variable remuneration is 40% to 60%, so that multi-year variable remuneration significantly outweighs single-year variable remuneration. In general, the variable remuneration components have a multi-year measurement basis in accordance with section 4.2.3 sentence 4 DCGK. The single-year variable remuneration component is described below as the Short Term Incentive (STI) while the multi-year variable remuneration component is described as the Long Term Incentive (LTI).

Fixed remuneration

The fixed remuneration comprises basic remuneration and fringe benefits.

Variable remuneration

Short-term variable remuneration (Short Term Incentive – STI)

The STI is paid for a period of one financial year in each case and paid out in the following financial year. The measurement period for the STI is the financial year for which it is paid.

The performance indicators for calculating the extent to which the target for the STI has been achieved are the following non-adjusted corporate performance indicators for the EnBW Group determined for one financial year:

- EBT (earnings before taxes), adjusted for earnings from the measurement of financial assets allocated to the financial result and outstanding items for derivatives allocated under trading as well as (since the resolution passed by the Supervisory Board of EnBW Baden-Württemberg AG on 5 December 2018 with effect from 1 January 2019) for effects due to the adjustment of the nuclear provisions and to the change in the inflation rate for costs for the operation, dismantling and disposal of the nuclear power plants and in the discount rate
- FFO (funds from operations), adjusted for the items of income tax paid and income tax received

The Supervisory Board will define the target values for the performance indicators EBT and FFO each year before the start of the single-year measurement period.

The target value for the performance indicator EBT is generally defined on the basis of the figure actually achieved in the previous year, whereby the Supervisory Board can, at its own discretion, make the achievement of the target easier or more difficult by adjusting the figure from the previous year, taking into account extraordinary events in the previous year and general considerations about the development of earnings (target-actual comparison).

The target value for the performance indicator FFO corresponds to the value defined for the performance indicator in the single-year budget plan approved in the year before the start of the measurement period (plan-actual comparison).

The target remuneration for the STI consists of two equally weighted partial remuneration amounts (50:50). Each partial remuneration amount will be achieved if the target value for the respective performance indicator is achieved to 100%.

The extent to which the individual targets for each of the performance indicators are achieved is based, in case of the underachievement or overachievement of the target value, on the ratio of the defined target value and the actual value for the performance indicator in the measurement period as defined in the consolidated financial statements for the year of payment.

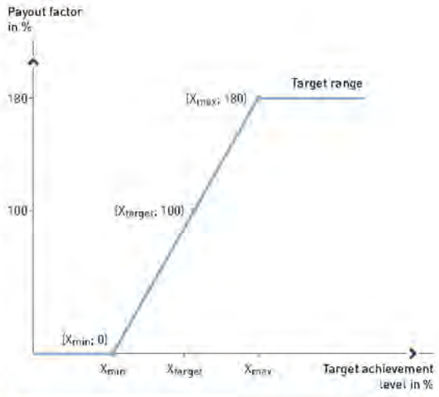
In the event of the overachievement of the target, the maximum possible remuneration that can be paid is limited to 180% of the partial target remuneration defined for each performance indicator (partial remuneration cap). The sum of both partial remuneration caps gives the total STI remuneration cap, which is 180% of the total amount for the STI target remuneration. In the event of the underachievement of the target, STI remuneration has no lower limit and can fall to an amount of €0.

When defining the target values for the short-term remuneration components, the Supervisory Board can also separately define a minimum and maximum value – at its own discretion – and thus the target range for each of the performance indicators on an annual basis.

The target range corresponds to a piecewise linear function, as shown in the adjacent diagram, which is determined by the value of the lowest achievement level X_{min} in relation to the lowest payout factor and the value of the highest achievement level X_{max} in relation to the highest payout factor. The relationship between the target value and the minimum and maximum values can be used to determine the lowest and highest achievement levels (X_{min} and X_{max}), respectively, while the relationship between the target remuneration and the minimum and maximum remuneration can be used to determine the lowest and highest payout factors, respectively. The partial amount of the short-term variable remuneration for each performance indicator based on the achievement level is calculated by multiplying the actual payout factor by the target remuneration defined for the respective performance indicator.

The actual payout factor is derived using the actual value achieved for the performance indicator and the piecewise linear function for the target range.

Target range



If the definitions for the performance indicators or accounting policies change, especially as a result of amendments to accounting standards, the target values and ranges will be adjusted correspondingly during the ongoing measurement period, insofar as these changes cause the relevant achievement level to differ by more than +/-5 percentage points in comparison to the value that would have been achieved without these changes. The sum of the partial remuneration amounts for each performance indicator gives the total preliminary STI remuneration.

The amount of the total preliminary STI remuneration, which is calculated exclusively on the basis of financial performance indicators, is then evaluated qualitatively using additional criteria. The adjustment is carried out by multiplying the total preliminary remuneration by a certain factor, whose lowest value is 0.7 and highest value is 1.3. Only one decimal place is used for this factor. If not defined otherwise by the Supervisory Board, the default factor is 1.0. The level of this factor is primarily determined by the Supervisory Board on the basis of an evaluation of criteria that are defined in advance on an annual basis. The sustainable growth of the company is an aspect that is particularly taken into account.

Calculation of the Short Term Incentive (STI)

In the event of extraordinary performance by the whole Board of Management or one member of the Board of Management, the Supervisory Board can at its own discretion grant special remuneration as part of the short-term variable remuneration.

As part of a final evaluation of the short-term variable remuneration, the Supervisory Board also has the discretionary power to appropriately adjust the amount of the STI to take into account extraordinary and unforeseeable events that cannot be controlled by the Board of Management that have had a considerable impact on the financial performance indicators on which the remuneration system is based. This discretionary power does not apply to the success targets or comparative values, the subsequent adjustment of which should be excluded according to the recommendations in section 4.2.3 paragraph 2 DCGK.

If remuneration is granted in accordance with the two previous paragraphs, the total STI remuneration cap of 180% of the target STI remuneration still applies.

Long-term variable remuneration (Long Term Incentive – LTI)

The LTI is paid for a period of one financial year and paid out in the financial year following the conclusion of the measurement period. The measurement period for calculating the LTI covers a period of three financial years which includes the year for which the remuneration is being paid and the two subsequent financial years (performance period).

The performance indicators for calculating the extent to which the target for the LTI has been achieved are the following non-adjusted corporate performance indicators for the EnBW Group determined for one financial year in each case:

- EBT (earnings before taxes), adjusted for earnings from the measurement of financial assets allocated to the financial result and outstanding items for derivatives allocated under trading as well as (since the resolution passed by the Supervisory Board of EnBW Baden-Württemberg AG on 5 December 2018 with effect from 1 January 2019) for effects due to the adjustment of the nuclear provisions and to the change in the inflation rate for costs for the operation, dismantling and disposal of the nuclear power plants and in the discount rate
- ROA (return on assets = return on the capital expenditure for intangible assets and property, plant and equipment based on the relationship between the non-adjusted EBIT [adjusted in line with the regulations for deviations in the performance indicator EBT] and the sum of the intangible assets and property, plant and equipment [adjusted for subsidies related to capital expenditure])

The target values for the performance indicators EBT and ROA for a performance period are defined by the Supervisory Board at its own discretion on an annual basis based on the corporate strategy and with effect for the next performance period that begins in the following year.

The target remuneration for the LTI consists of two equally weighted partial remuneration amounts (50:50). Each partial remuneration amount will be achieved if the target value for the respective performance indicator is achieved to 100%.

The extent to which the individual targets for each of the performance indicators are achieved is based, in case the underachievement or overachievement of the target value, on the ratio of the defined target value and the arithmetic mean of the actual values for the performance indicator as defined in the consolidated financial statements for each individual year of the performance period.

In the event of the overachievement of the target, the maximum possible remuneration that can be paid is limited to 180% of the partial target remuneration defined for each performance indicator (partial remuneration cap). The sum of both partial remuneration caps gives the total LTI remuneration cap, which is 180% of the total amount for the LTI target remuneration. In the event of the underachievement of the target, LTI remuneration has no lower limit and can fall to an amount of €0.

When defining the target values for the long-term remuneration components, the Supervisory Board can also separately define a minimum and maximum value – at its own discretion – and thus the target range for each of the performance indicators on an annual basis (see here the information provided for the STI).

The partial amount of the long-term variable remuneration for each performance indicator based on the achievement level is calculated by multiplying the actual payout factor by the target remuneration defined for the respective performance indicator. The actual payout factor is derived using the actual value achieved for the performance indicator and the piecewise linear function for the target range. The sum of the partial remuneration amounts for each performance indicator gives the total LTI remuneration.

If the definitions for the performance indicators or accounting policies change, especially as a result of amendments to accounting standards, the target values and ranges will be adjusted correspondingly during the ongoing measurement period, insofar as these changes cause the relevant achievement level to differ by more than 5 percentage points in comparison to the value that would have been achieved without these changes.

The regulations for the Board of Management remuneration system that were valid up to 31 December 2017 apply for the long-term variable remuneration in the measurement periods 2015 to 2017, 2016 to 2018 and 2017 to 2019, whereby the Supervisory Board of EnBW Energie Baden-Württemberg AG passed a resolution on 12 July 2018 that a remuneration cap for the total LTI of 110% of the total target remuneration will be introduced for the measurement periods 2016 to 2018 and 2017 to 2019. The LTI value appreciation bonus according to the old remuneration system consisted of a basic LTI, a competition component and a sustainability component. The total value appreciation bonus is the sum of the variable remuneration payments that are calculated from these three components. Target values, lower limits and upper limits are defined in advance by the Supervisory Board. The basic LTI is determined by the accumulated contribution to value added derived from the three-year medium-term planning. It is calculated from the difference between the performance indicators ROCE and WACC (weighted average cost of capital) multiplied by the average capital employed. The competition component measures the relative performance of the EnBW Group in the respective three-year performance period against a peer group of competitors on the basis of the value spread (= ROCE - WACC). The goal of the sustainable growth of the company in its strictest sense is also taken into account through the LTI sustainability component. In this component, the impact of the sustainable growth of the company on the areas of customers, employees and environment/society is taken into account. The extent to which the targets for all three components have been achieved is determined after the conclusion of the three-year planning period that acts as the basis for the calculations in each case. The Supervisory Board is entitled to adjust the targets if events arise that are not relevant to the ongoing management of the company and thus outside of the sphere of influence of the Board of Management. The size of the value appreciation bonus for 100% achievement of the targets, as well as the maximum and minimum values for the overachievement or under-achievement of the agreed targets, can also be found in the table "Target income of members of the Board of Management". The amount based on the achievement of the relevant targets is paid out after the conclusion of the three-year measurement period. With a view to maintaining the previous level of target income, interest of 3% per annum is accrued on the calculated bonus payment for two years and is paid after the conclusion of the three-year calculation period.

Integrated Annual Report 2018 of EnBW

Remuneration of members of the Board of Management in the 2018 financial year

in €	Dr. Frank Mastiaux, Chairman		Dr. Bernhard Beck, LL.M.		Thomas Kusterer		Dr. Hans-Josef Zimmer	
	2018	2017	2018	2017	2018	2017	2018	2017
Fixed remuneration								
Basic remuneration	990,000	990,000	515,000	515,000	515,000	515,000	515,000	515,000
Other remuneration[1]	17,086	30,933	18,715	32,078	23,594	23,313	39,956	41,309
Variable remuneration								
Without long-term incentive	602,765	999,350	413,075	593,950	419,686	514,994	418,477	514,820
With long-term incentive	1,198,817[2]	1,282,331	732,021[2]	755,354	625,931[2]	651,327	625,931[2]	651,327
Total	**3,008,608**	**3,302,614**	**1,678,811**	**1,896,382**	**1,584,211**	**1,704,634**	**1,599,364**	**1,722,456**

1 Other remuneration includes monetary benefits, particularly from the provision of company cars amounting to €196,687 (previous year: €126,911).
2 Current preliminary value appreciation bonus for the performance periods 2017 to 2019 (and 2018 to 2020) is €1,130,000 for Dr. Frank Mastiaux (€1,314,985), €690,000 for Dr. Bernhard Beck (€685,918), €590,000 for Thomas Kusterer (€685,918) and €590,000 for Dr. Hans-Josef Zimmer (€685,918). The exact level of the value appreciation bonus for the performance periods 2017 to 2019 (and 2018 to 2020) can only be determined following the end of the 2019 financial year (and 2020 financial year), and can fluctuate within the LTI spread pursuant to the following table Target income of members of the Board of Management.

Target income of members of the Board of Management [1]

in €	Dr. Frank Mastiaux, Chief Executive Officer				Dr. Bernhard Beck, LL.M., Chief Personnel Officer				Thomas Kusterer, Chief Financial Officer				Dr. Hans-Josef-Zimmer, Chief Technical Officer			
	2018	2018 (min.)	2018 (max.)	2017	2018	2018 (min.)	2018 (max.)	2017	2018	2018 (min.)	2018 (max.)	2017	2018	2018 (min.)	2018 (max.)	2017
Fixed remuneration	990,000	990,000	990,000	990,000	515,000	515,000	515,000	515,000	515,000	515,000	515,000	515,000	515,000	515,000	515,000	515,000
Fringe benefits	17,086	17,086	17,086	30,933	18,715	18,715	18,715	32,078	23,594	23,594	23,594	23,313	39,956	39,956	39,956	41,309
Total	**1,007,086**	**1,007,086**	**1,007,086**	**1,020,933**	**533,715**	**533,715**	**533,715**	**547,078**	**538,594**	**538,594**	**538,594**	**538,313**	**554,956**	**554,956**	**554,956**	**556,309**
One-year variable remuneration performance bonus	710,000	0	1,276,000	748,000	370,000	0	666,000	455,000	370,000	0	666,000	390,000	370,000	0	666,000	390,000
Multi-year variable remuneration LTI 2016 to 2018	1,026,000	0	1,130,000	1,026,000	630,000	0	690,000	630,000	535,000	0	590,000	535,000	535,000	0	590,000	535,000
Total	**2,743,086**	**1,007,086**	**3,415,086**	**2,794,933**	**1,533,715**	**533,715**	**1,889,715**	**1,632,078**	**1,443,594**	**538,594**	**1,794,594**	**1,463,313**	**1,459,956**	**554,956**	**1,810,956**	**1,481,309**
Pension expenses	546,663	546,663	546,663	545,005	112,847	112,847	112,847	222,398	380,180	380,180	380,180	320,993	235,725	235,725	235,725	239,981
Total remuneration	**3,289,749**	**1,553,749**	**3,961,749**	**3,339,938**	**1,646,562**	**646,562**	**2,002,562**	**1,854,476**	**1,823,774**	**918,774**	**2,174,774**	**1,784,306**	**1,695,681**	**790,681**	**2,046,681**	**1,721,290**

1 This table illustrates the remuneration in both the reporting year and previous year which arises given 100% achievement of the targets (target income) and the potential minimum and maximum remuneration for the financial year. Remuneration is described for Board of Management members who were appointed at least on a part-time basis in either the reporting year or previous year to the Board of Management at EnBW AG.

Payments to Board of Management members [1]

in €	Dr. Frank Mastiaux, Chief Executive Officer		Dr. Bernhard Beck, LL.M., Chief Personnel Officer		Thomas Kusterer, Chief Financial Officer		Dr. Hans-Josef-Zimmer, Chief Technical Officer	
	2018	2017	2018	2017	2018	2017	2018	2017
Fixed remuneration	990,000	990,000	515,000	515,000	515,000	515,000	515,000	515,000
Fringe benefits	17,086	30,933	18,715	32,078	23,594	23,313	39,956	41,309
Total	**1,007,086**	**1,020,933**	**533,715**	**547,078**	**538,594**	**538,313**	**554,956**	**556,309**
One-year variable remuneration performance bonus	838,089	892,250	464,059	503,050	445,103	475,294	443,895	475,120
Multi-year variable remuneration Deferrals from 2014	–	445,231	–	261,901	–	235,711	–	235,711
LTI 2014 to 2016	–	796,118	–	388,059	–	349,453	–	349,453
LTI 2015 to 2017	1,222,921	–	718,222	–	620,561	–	620,560	–
Total	**3,068,076**	**3,154,532**	**1,715,996**	**1,698,088**	**1,604,258**	**1,598,771**	**1,619,411**	**1,616,593**
Pension expenses	546,663	545,005	112,847	222,398	380,160	320,993	235,725	239,981
Total remuneration	**3,614,739**	**3,699,537**	**1,828,843**	**1,920,486**	**1,984,438**	**1,919,764**	**1,855,136**	**1,856,574**

1 This table illustrates payments in both the reporting year and previous year pursuant to the German Income Tax Act (Einkommensteuergesetz). Earnings are described for members of the Board of Management who were appointed at least on a part-time basis in either the reporting year or previous year to the Board of Management of EnBW AG.

Compensation agreed with the Board of Management in the event of termination of service

The Supervisory Board of EnBW AG passed a new resolution on 18 March 2016 for the reorganisation of the company pension scheme for the Board of Management, effective as of 1 January 2016.

The regulations that were valid up until then can be found in the following publications:

- The company pension scheme that was valid for members of the Board of Management up until 31 December 2015 is presented in detail in the remuneration report for 2015, which was published in the combined management report of the EnBW Group and EnBW AG for the 2015 financial year.
- The regulations governing the transition of the company pension scheme that was valid for members of the Board of Management up until 31 December 2015 are presented in detail in the remuneration report for 2016, which was published in the combined management report of the EnBW Group and EnBW AG for the 2016 financial year.

The company pension scheme for the members of the Board of Management at the company is a modern and market-oriented pension system that provides members of the Board of Management with flexibility with respect to how the pension benefits are paid out. Following the introduction of the new system, there has been a shift from the previous defined benefit pension plan to a defined contribution pension model. In the new system, annual pension contributions will be paid that accrue interest at a rate oriented to the capital market. In order to ensure that the business risks associated with the pension scheme – especially the interest rate risks and biometric risks – remain calculable in the future, the interest model only contains a relatively low fixed interest entitlement that forms the basic interest rate plus a non-guaranteed surplus that is based on the actual development of interest rates in the life insurance industry.

During the term of the contract, EnBW pays fixed annual contributions to the pension scheme to an individual pension account. Pension contributions are paid for a maximum period of three terms of office (or 13 years in office). The fixed annual contributions are €230,000 for ordinary members of the Board of Management and €390,000 for the Chairman of the Board of Management. In the event of invalidity and as a supplementary risk benefit, age-dependent "notional" contributions will be paid on top of the balance already existing on the pension account until the member reaches the age of 60 – although at the most seven contributions will be paid.

As well as the annual contributions, interest is paid that is oriented to the market and consists of a guaranteed basic interest rate and a non-guaranteed surplus. The guaranteed interest is paid on every contribution in advance until the defined retirement age (63 years old). In addition, annual surplus payments can be paid above and beyond the guaranteed interest. These are based on the current average interest rate for capital investments actually achieved in the past year in the life insurance industry and are not guaranteed.

When the pension is due (age, invalidity, death), payment of the pension assets is generally made in five to ten instalments. Alternatively, a life-long pension payment can be made on the request of the member of the Board of Management – including a 60% entitlement for surviving dependants – or a mixed form of payment. Payment options are also available to the surviving dependants. If the member leaves the Board of Management before the pension is due, the pension account will remain at its current balance plus any surplus payments that are still due to be made.

The members of the Board of Management are entitled to make their own contributions to the pension scheme and supplement the pension provision financed by the employer. For this purpose, a proportion of the annual STI bonus up to a maximum sum of €50,000 p.a. can be converted into a pension entitlement. The regulations described above apply correspondingly to self-financed contributions.

Vested pension entitlements from the old pension scheme: As part of the transfer of the existing pension entitlements from the old pension scheme, the following vested pension entitlements – in accordance with the individual term of service in each case – were determined for the serving members of the Board of Management as of 31 December 2015: Dr. Frank Mastiaux: €80,676 p.a., Dr. Bernhard Beck: €195,846 p.a., Thomas Kusterer: €89,523 p.a., Dr. Hans-Josef Zimmer: €174,636 p.a.

Individual pension contributions that deviate from the regulations for the new pension scheme: From 1 January 2016, the annual pension contributions and the interest on the contributions will generally be paid in accordance with the rules of the new system for new members of the Board of Management appointed in the future. However, a deviation was necessary for the current members of the Board of Management to take account of the transition to the new system, and individual pension contributions and an individual contribution period have been defined. The following individual pension contributions were determined: Dr. Frank Mastiaux: €360,000 p.a., Dr. Bernhard Beck: €170,000 p.a., Thomas Kusterer: €215,000 p.a., Dr. Hans-Josef Zimmer: €120,000 p.a.

Regulation for limiting severance payments: No severance benefit obligations exist in the event of premature termination of service on the Board of Management. However, severance benefits may be payable on the basis of a severance agreement made with the individual. For agreements in place as of the reporting date, it was agreed that payments made to a member of the Board of Management on premature termination of his or her contract without serious cause, including fringe benefits, shall not exceed the value of two years' remuneration (severance cap) and compensate for no more than the remaining term of the contract. In concluding or extending contracts for the Board of Management, care is taken to ensure that no payments will be made to a member of the Board of Management in the event of the premature termination of the contract due to an important reason for which the member of the Board of Management is responsible.

In the event of the premature termination of service on the Board of Management due to a change of control, the possibility of a severance payment for the member of the Board of Management is limited to the pro rata share of annual remuneration(s) for the residual term of the contract. However, the severance payment must not exceed three times the annual remuneration.

In concluding or extending contracts for the Board of Management in the event of the premature termination of service on the Board of Management due to a change of control, it is agreed that settlement or severance payments should not exceed three times the annual remuneration and must not compensate for more than the residual term of the contract.

Temporary unavailability for work: In the event of temporary unavailability for work on the part of a member of the Board of Management due to illness or any other reason for which the member of the Board of Management is not responsible, remuneration will be paid for the first six months. The amount of variable remuneration will be calculated from the average of the last three years, and basic remuneration will be paid for a further six months. However, payments in the event of unavailability for work will be made no longer than until the end of the term of the service agreement.

The disclosures for the 2018 financial year concerning post-employment benefits are presented below. This presentation satisfies the requirements of section 285 No. 9a HGB. The disclosures include the vested entitlement as of the reporting date, the annual expenses for pension obligations and the present value of the pension obligations earned as of the reporting date.

Post-employment benefits

in €	Dr. Frank Mastiaux, Chairman		Dr. Bernhard Beck, LL.M.		Thomas Kusterer		Dr. Hans-Josef Zimmer	
	2018	2017	2018	2017	2018	2017	2018	2017
Vested benefit from previous entitlement p.a.	80,676	80,676	195,846	195,846	89,523[2]	89,523[2]	174,636	174,636
Capital from contribution model	1,296,167	877,398	373,116	312,129	777,533	515,493	384,086	254,642
Annual expenses for pension obligations[1]	546,663	545,005	112,947	222,398	280,190	320,993	235,725	239,981
Present value of pension obligations (defined benefit obligations)	3,396,625	2,899,870	5,216,617	4,971,364	3,151,738	2,786,574	4,845,098	4,864,216

1 Including an addition to capital for pension benefits totalling €129,128 (previous year: €74,580). This is a pension commitment financed through voluntarily waiving part of the salary.
2 In addition to the vested pension, Thomas Kusterer also has a special capital component of €135,000.

Annual expenses for pension obligations include both service and interest costs. There are defined benefit obligations in accordance with IFRS of €16.6 million for the current members of the Board of Management (previous year: €15.2 million).

Former members of the Board of Management and their surviving dependants received total remuneration of €4.8 million in the 2018 financial year (previous year: €4.7 million). These pension payments are indexed to the percentage change in remuneration according to the collective bargaining agreement.

There are defined benefit obligations to former members of the Board of Management and their surviving dependants in accordance with IFRS of €99.0 million (previous year: €98.8 million).

As in the previous year, no loans or advances to members of the Board of Management existed at the end of the financial year.

Supervisory Board remuneration

In response to a proposal of the Board of Management and Supervisory Board, the Annual General Meeting on 25 April 2013 revised the regulations for Supervisory Board remuneration. Accordingly, members of the Supervisory Board receive fixed remuneration of €40,000 each payable at the end of the financial year in addition to reimbursement of their expenses for the entire 2018 financial year.

The Chairman of the Supervisory Board receives twice the above, while the Deputy Chairman of the Supervisory Board receives one and a half times the aforementioned amount.

Members of the Supervisory Board receive fixed remuneration of €7,500 each per financial year to offset the additional work involved in any activities in one or more Supervisory Board committees. The Chairperson of one or more committees receives twice the amount of the remuneration for the committee work, unless the respective committee has not met in the financial year concerned. Supervisory Board members who have only belonged to the Supervisory Board or a committee or acted as a Chairperson for part of the financial year are paid remuneration proportionate to the duration of their office or their position in that financial year.

In addition, members of the Supervisory Board receive an attendance fee of €750 for Supervisory Board meetings and committee meetings. Attendance at preliminary meetings is remunerated with €250 per meeting, but only for one preliminary meeting per Supervisory Board meeting.

According to this remuneration system, the members of the Supervisory Board will receive the total remuneration (including attendance fees and remuneration for offices held at subsidiaries) shown in the table for the 2018 financial year.

The disclosures for the remuneration for members of the Supervisory Board include attendance fees amounting to €201,500 (previous year: €227,250) and attendance fees totalling €14,390 included in the remuneration for offices held at subsidiaries (previous year: €20,265). No other remuneration or benefits for services rendered personally, in particular consulting or mediation services, were paid to members of the Supervisory Board, nor did they receive any loans or advances in the reporting year.

The members of the Board of Management and the Supervisory Board are covered by adequate D&O insurance concluded in the interest of EnBW. For this D&O insurance, the deductible for members of the Board of Management and the Supervisory Board is 10% of the claim in each case, but no more than one and a half times the fixed annual remuneration.

Total remuneration for members of the Supervisory Board of EnBW AG

in €	Fixed remuneration (incl. attendance fees)		Remuneration for offices held at subsidiaries		Total	
	2018	2017	2018	2017	2018	2017
Lutz Feldmann, Chairman	110,750	113,000	0	0	110,750	113,000
Dietrich Herd, Deputy Chairman	84,750	89,500	9,500	9,800	94,250	99,300
Dr. Dietrich Birk	57,250	57,250	0	0	57,250	57,250
Stefanie Bürkle[1]	52,000	54,250	0	0	52,000	54,250
Stefan Paul Hamm[2]	64,000	66,250	7,513	7,513	71,513	73,763
Volker Hüsgen (since 1 October 2018)	13,723	0	2,579	0	16,302	0
Michaela Kräutter[2]	46,000	46,000	950	1,500	46,950	47,500
Silke Krebs	56,500	61,000	0	0	56,500	61,000
Marianne Kugler-Wendt[2]	56,500	56,500	6,100	6,400	62,600	62,900
Thomas Landsbek	46,000	46,000	0	0	46,000	46,000
Dr. Hubert Lienhard	54,250	55,000	0	0	54,250	55,000
Sebastian Maier	56,500	56,500	6,615	6,615	63,115	63,115
Arnold Messner	63,750	66,250	8,113	8,113	71,863	74,363
Dr. Wolf-Rüdiger Michel[1]	54,250	54,250	0	0	54,250	54,250
Gunda Röstel	64,000	66,250	11,513	11,513	75,513	77,763
Klaus Schörnich (until 30 September 2018)	42,777	56,500	200	11,150	42,977	67,650
Heinz Seiffert[1]	55,750	55,750	0	0	55,750	55,750
Edith Sitzmann[3]	54,250	55,750	0	0	54,250	55,750
Ulrike Weindel	56,500	56,500	0	0	56,500	56,500
Lothar Wölfle[1]	63,250	64,750	0	0	63,250	64,750
Dr. Bernd-Michael Zinow	66,250	68,500	12,800	12,200	79,050	80,700
Total	**1,219,000**	**1,244,750**	**65,883**	**74,804**	**1,284,883**	**1,319,554**

1 The regulations in the State Civil Service Act (Landesbeamtengesetz) and the Ancillary Activities Ordinance (Landesnebentätigkeitsverordnung – LNTVO) of the Federal State of Baden-Württemberg for relinquishing remuneration from secondary employment to the administrative district apply. The regulations in LBeamtVG apply instead for Mr Seiffert.

2 In accordance with the regulations of the German Federation of Trade Unions (DGB) on the transfer of supervisory board remuneration, the remuneration is transferred to the Hans Böckler Foundation and ver.di GewerkschaftsPolitische Bildung gGmbH.

3 The members of the state government and the state secretaries are obligated to relinquish any remuneration, including attendance fees, received for membership of supervisory boards, executive boards, advisory boards and all other comparable boards to which they have been appointed in connection with their office or to which they are assigned as a member of the state government, applying section 5 LNTVO analogously, provided that the remuneration received in the calendar year exceeds the gross total for level "B6 and higher" (currently €6,100) (council of ministers resolution dated 05/07/2016).

Disclosures pursuant to sections 289a (1) and 315a (1) German Commercial Code (HGB) and explanatory report of the Board of Management

In the following, the Board of Management provides the information prescribed by sections 289a (1) and 315a (1) HGB and explains this in accordance with section 176 (1) sentence 1 AktG.

Composition of the subscribed capital and shares in capital

The composition of the subscribed capital is described and explained in the notes to the annual and consolidated financial statements in the section "Equity". Direct or indirect shares in capital which exceed 10% of the voting rights are described and explained in the notes to the annual financial statements in the sections "Shareholder structure" and "Disclosures pursuant to sections 33 ff. German Securities Trading Act (WpHG)" and the notes to the consolidated financial statements in section "Related parties (entities)".

Information and explanations about the company's treasury shares are presented below and can be found in note 18 of the notes to the consolidated financial statements at www.enbw.com/report2018-downloads.

Restrictions relating to voting rights or transferability of shares

Agreements were reached on 22 December 2015 between, on the one hand, Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) and OEW Energie-Beteiligungs GmbH and, on the other, the Federal State of Baden-Württemberg, NECKARPRI GmbH and NECKARPRI-Beteiligungsgesellschaft mbH, which include clauses relating to restrictions of authorisation over EnBW shares held by these parties and a general mutual obligation of both main shareholders to maintain parity investment relationships in EnBW with respect to each other. Restrictions relating to voting rights no longer exist to the knowledge of the Board of Management since the aforementioned direct and indirect EnBW shareholders annulled a shareholder agreement on 22 December 2015 that had previously existed between them.

Legal provisions and statutes on the appointment and dismissal of members of the Board of Management and amendments to the Articles of Association

Pursuant to section 84 AktG in conjunction with section 31 MitbestG, responsibility for the appointment and dismissal of members of the Board of Management rests with the Supervisory Board. This competence is stipulated in section 7 (1) sentence 2 of the Articles of Association of EnBW. If, under exceptional circumstances, a necessary member of the Board of Management is missing, section 85 AktG requires that a member of the Board of Management be appointed by the court in urgent cases.

The Annual General Meeting has the right to make changes to the Articles of Association in accordance with section 119 (1) No. 5 AktG. The specific rules of procedure are contained in sections 179 and 181 AktG. For practical reasons, the right to amend the Articles of Association was transferred to the Supervisory Board where such amendments affect the wording only. This option pursuant to section 179 (1) sentence 2 AktG is embodied in section 18 (2) of the Articles of Association.

Pursuant to section 179 (2) AktG, resolutions by the Annual General Meeting to amend the Articles of Association require a majority of at least three quarters of the capital stock represented when passing the resolution, unless the Articles of Association stipulate a different majority, which however for any amendment of the purpose of the company can only be higher. Pursuant to section 18 (1) of the Articles of Association, resolutions by the Annual General Meeting require a simple majority of the votes cast, unless legal regulations or the Articles of Association stipulate otherwise. If the law requires a larger majority of the votes cast or of the capital stock represented when passing the resolution, the simple majority suffices in those cases where the law leaves the determination of the required majority to the Articles of Association.

Authority of the Board of Management regarding the possibility to issue or redeem shares

No authorised or conditional capital nor any authorisation of the Annual General Meeting pursuant to section 71 (1) No. 8 AktG for the purchase of treasury shares by the company currently exists at EnBW. Therefore, the company may only acquire treasury shares on the basis of other reasons justifying such purchases in accordance with section 71 (1) AktG. As of 31 December 2018, the company holds 5,749,677 treasury shares which were purchased on the basis of earlier authorisations in accordance with section 71 (1) No. 8 AktG. The company's treasury shares can be sold on the stock exchange or by public offer to all company shareholders. The use of treasury shares, in particular their sale, in any other way can only occur within the scope of the resolution issued by the Annual General Meeting on 29 April 2004. The treasury shares held by EnBW do not grant the company any rights in accordance with section 71b AktG.

Material agreements of the company subject to the condition of a change of control as a result of a takeover bid and the resulting effects

The following EnBW agreements are subject to the condition of a change of control following a takeover bid as defined by sections 289a (1) No. 8 and 315a (1) No. 8 HGB:

A syndicated credit line of €1.5 billion, which had not been drawn as of 31 December 2018, can be terminated by the lenders and become due for repayment given a change of control at EnBW. This does not apply if the purchaser of the shares is the Federal State of Baden-Württemberg or Zweckverband OEW or another German state-owned public law legal entity.

A promissory note loan of €200 million, two bilateral bank loans together totalling around €48 million and a syndicated loan, of which €186 million was drawn as of 31 December 2018, taken out by Stadtwerke Düsseldorf AG (SWD) relating to the financing of their CCGT power plant can each become due for repayment given a change of control at SWD, including an indirect change of control. This does not apply if, after the change of control, the majority of shares in SWD are held directly or indirectly by German government entities, and the City of Düsseldorf holds at least 25.05% of the shares in SWD.

A syndicated credit line with a volume of €700 million that was newly agreed with VNG AG in 2018, of which around €59 million was drawn down as of 31 December 2018, can become due for repayment given a change of control at VNG, including an indirect change of control. This does not apply if, after the change of control, the majority of shares in VNG continue to be held directly by German public sector shareholders or indirectly by these shareholders via controlled legal entities.

A bond of JPY 20 billion issued on 12 December 2008 under the Debt Issuance Programme can be terminated by the lenders and become due for repayment given a change of control at EnBW. This does not apply if the purchaser of the shares is EDF (whose legal successor as shareholder has been the Federal State of Baden-Württemberg since February 2011) or Zweckverband OEW or another German state-owned public law corporation.

Two bilateral long-term bank loans, drawn to the value of €375 million and around €364 million as of 31 December 2018, can be terminated by the lender and become due for repayment given a change of control at EnBW, provided the change of control has a negative effect on repayment of the loan in future. This does not apply if the purchaser of the shares is EDF (whose legal successor as shareholder has been the Federal State of Baden-Württemberg since February 2011) or Zweckverband OEW.

Compensation agreements

Compensation agreements pursuant to sections 289a (1) No. 9 and 315a (1) No. 9 HGB concluded with members of the Board of Management to cover any case of a change of control are described and explained in the remuneration report, which is part of the management report.

Nos. 4 and 5 of sections 289a (1) and 315a (1) HGB were not relevant for EnBW in the 2018 financial year.

Index for the non-financial declaration of the EnBW Group and EnBW AG

In accordance with sections 315b and 289b HGB, the EnBW Group and EnBW AG have been obligated to issue a non-financial declaration since the 2017 financial year. EnBW is complying with the requirements in the Act on Strengthening Non-Financial Reporting by Companies in Management Reports and Group Management Reports (CSR Directive Implementation Act) – as in the previous year – through a non-financial declaration that is fully integrated into the Integrated Annual Report as part of the combined management report of the EnBW Group and EnBW AG. We comply with all of the aspects required by the act and also with other aspects that are material from the perspective of EnBW, such as standing in society, customer satisfaction and supply quality, by providing the respective information in each relevant section of the Integrated Annual Report 2018. The following table describes the relevant aspects that are contained in the integrated report. They each provide explanations of the concepts and processes, measures, performance indicators and risks.

Index for the non-financial declaration of the EnBW Group and EnBW AG

Goal dimension	Themes	Aspects	Section	Page reference
	Compliance	› Fighting corruption and bribery	› Corporate governance › Report on opportunities and risks	page 57 f. page 118
	Social engagement	› Social issues	› In dialogue with our stakeholders › Report on opportunities and risks	page 61 f. page 118
	Procurement	› Respect for human rights	› Procurement › Report on opportunities and risks	page 69 ff. page 118
Customers and society	Reputation	› Standing in society	› The EnBW Group › Forecast › Report on opportunities and risks	page 94 page 112 page 118
	Customer proximity	› Customer satisfaction	› The EnBW Group › Forecast › Report on opportunities and risks	page 94 ff. page 112 page 118
	Supply reliability	› Supply quality	› The EnBW Group › Forecast	page 96 page 112
Employees	Employee commitment	› Employee issues	› The EnBW Group › Forecast › Report on opportunities and risks	page 96 ff. page 113 page 118
	Occupational safety	› Employee issues	› The EnBW Group › Forecast › Report on opportunities and risks	page 100 f. page 113 page 118
Environment	Expansion of renewable energies	› Environmental issues	› The EnBW Group › Forecast › Report on opportunities and risks	page 101 f. page 113 page 118 f.
	Climate protection	› Environmental issues	› Business model › General conditions › The EnBW Group › Forecast › Report on opportunities and risks	page 39 page 73 f. page 103 f. page 113 page 119

The non-financial declaration is issued jointly for the EnBW Group and EnBW AG. Differences between the statements for the Group and EnBW AG are clearly identified in the text. Information on the business model can be found in the section "Business model" (p. 38 ff.). We have not identified any material individual risks in the 2018 financial year that have a very high probability of a serious negative impact in relation to the relevant non-financial issues.

The reporting of sustainability topics has been based for many years on the standard issued by the Global Reporting Initiative (GRI). Since the 2017 financial year, we have based the reporting on the GRI standards, including the Electric Utilities Sector Supplement (www.enbw.com/gri-index). Our sustainability reporting also complies with the requirements of the Communication on Progress for the UN Global Compact.

Information on the diversity concept can be found in the declaration of corporate management at www.enbw.com/corporate-governance.

KPMG AG Wirtschaftsprüfungsgesellschaft is commissioned to audit the consolidated financial statements and the combined management report including the contents of the non-financial declaration with reasonable assurance and then to issue an audit opinion following the conclusion of the audit.

The full consolidated financial statements and the combined management report for the 2018 financial year are accessible to the public on the website at www.enbw.com/report2018-downloads.

Index for the Task Force on Climate-related Financial Disclosures (TCFD)

EnBW started to implement the recommendations from the TCFD in 2017. This work has continued in the 2018 financial year and is being continuously developed in each of the four key elements. The index also includes other themes besides these where we are working on the further implementation of the TCFD recommendations.

Task Force on Climate-related Financial Disclosures (TCFD)

Issue	Contents	Page reference
Governance	› Corporate management	page 56
	› Materiality analysis	page 59 f.
	› Investment guidelines	pages 60 and 88
	› Climate protection initiatives	pages 60 and 73
	› Overall assessment by the Group management	page 109
	› Board of Management remuneration	page 124 ff.
Strategy	› Robustness of business model / scenario analysis	page 39
	› Strategy, strategic development	pages 48 and 50 f.
	› Interdependencies	page 53 ff.
	› Materiality analysis	page 59 f.
	› Green bonds	page 85 f.
	› General conditions, climate protection	page 73 f.
	› Environment goal dimension: internal control system	page 117 f.
Risk management	› Integrated opportunity and risk management including opportunity and risk map	page 114 ff.
	› Environment goal dimension: opportunities and risks	page 118 ff.
Performance indicators and targets	› Sustainability rating	page 60
	› Key performance indicators and long-term targets	page 51 ff.
	› Environment goal dimension: key performance indicators and other performance indicators	page 101 ff.

Condensed financial statements of the EnBW Group

Note

The full set of financial statements of the EnBW Group 2018 including the notes to the consolidated financial statements and the unqualified auditor's report form part of the Integrated Annual Report 2018 – Extended Version, which is available in PDF format on our website at www.enbw.com/report2018-downloads.

Income statement

in € million[1]	Notes	2018	2017	Change in %
Revenue including electricity and energy taxes		21,193.1	22,622.7	-6.3
Electricity and energy taxes		-575.6	-648.7	-11.3
Revenue	[1]	**20,617.5**	**21,974.0**	**-6.2**
Changes in inventories		13.9	22.7	-38.8
Other own work capitalised		102.1	134.9	-24.3
Other operating income	[2]	1,116.7	2,750.3	-59.4
Cost of materials	[3]	-16,657.6	-18,189.3	-8.4
Personnel expenses	[4]	-1,871.8	-1,777.1	5.3
Impairment losses	[24]	-36.7	–	–
Other operating expenses	[5]	-1,194.5	-1,163.1	2.7
EBITDA		**2,089.6**	**3,752.4**	**-44.3**
Amortisation and depreciation	[6]	-1,213.8	-1,248.4	-2.8
Earnings before interest and taxes (EBIT)		**875.8**	**2,504.0**	**-65.0**
Investment result	[7]	100.9	159.3	-36.7
of which net profit/loss from entities accounted for using the equity method		[-24.1]	[43.3]	–
of which other profit/loss from investments		[125.0]	[116.0]	7.8
Financial result	[8]	-380.4	194.6	–
of which finance income		[295.5]	[704.1]	-58.0
of which finance costs		[-675.9]	[-509.5]	32.7
Earnings before tax (EBT)		**596.3**	**2,857.9**	**-79.1**
Income tax	[9]	-128.7	-681.6	-81.1
Group net profit		**467.6**	**2,176.3**	**-78.5**
of which profit/loss shares attributable to non-controlling interests		[133.4]	[122.2]	9.2
of which profit/loss shares attributable to the shareholders of EnBW AG		[334.2]	[2,054.1]	-83.7
EnBW AG shares outstanding (million), weighted average		**270.855**	**270.855**	**0.0**
Earnings per share from Group net profit (€)[2]	[23]	**1.23**	**7.58**	**-83.7**

1 We publish the full set of consolidated financial statements at www.enbw.com/report2018-downloads
2 Diluted and basic in relation to profit/loss attributable to the shareholders of EnBW AG

Statement of comprehensive income

in € million[1]	2018	2017	Change in %
Group net profit	**467.6**	**2,176.3**	**-78.5**
Revaluation of pensions and similar obligations	-110.0	86.6	–
Income taxes on other comprehensive income	31.8	-14.7	–
Total of other comprehensive income and expenses without future reclassifications impacting earnings	**-78.2**	**71.9**	**–**
Currency translation differences	5.1	46.0	-88.9
Cash flow hedge	-143.8	4.5	–
Financial assets at fair value in equity	-16.2	–	–
Available-for-sale financial assets	–	103.8	–
Entities accounted for using the equity method	1.0	-4.1	–
Income taxes on other comprehensive income	81.5	-33.1	–
Total of other comprehensive income and expenses with future reclassifications impacting earnings	**-72.4**	**117.1**	**–**
Total other comprehensive income	**-150.6**	**189.0**	**–**
Total comprehensive income	**317.0**	**2,365.3**	**-86.6**
of which profit/loss shares attributable to non-controlling interests	[132.6]	[135.6]	-2.2
of which profit/loss shares attributable to the shareholders of EnBW AG	[184.4]	[2,229.7]	-91.7

1 Further information is available in the notes under [18] "Equity". We publish the full set of consolidated financial statements at www.enbw.com/report2018-downloads

Balance sheet

in € million [1]	Notes	31/12/2018	31/12/2017
Assets			
Non-current assets			
Intangible assets	[10]	1,748.7	1,905.9
Property, plant and equipment	[11]	15,867.5	15,597.4
Entities accounted for using the equity method	[12]	1,600.2	1,388.6
Other financial assets	[13]	5,426.5	5,985.7
Trade receivables	[14]	302.0	320.9
Other non-current assets	[15]	741.8	611.7
Deferred taxes	[20]	1,059.3	956.4
		26,746.0	**26,766.6**
Current assets			
Inventories		1,192.0	958.1
Financial assets	[16]	774.7	588.1
Trade receivables	[14]	4,515.7	4,408.7
Other current assets	[15]	3,788.9	2,847.1
Cash and cash equivalents	[17]	2,249.4	3,213.3
		12,520.7	**12,015.3**
Assets held for sale	[22]	342.3	3.0
		12,863.0	**12,018.3**
		39,609.0	**38,784.9**
Equity and liabilities			
Equity	[16]		
Shares of the shareholders of EnBW AG			
Subscribed capital		708.1	708.1
Capital reserve		774.2	774.2
Revenue reserves		4,676.4	3,636.6
Treasury shares		-204.1	-204.1
Other comprehensive income		-1,976.7	-1,367.4
		3,977.9	**3,547.4**
Non-controlling interests		2,295.4	2,315.5
		6,273.3	**5,862.9**
Non-current liabilities			
Provisions	[19]	13,246.0	13,124.5
Deferred taxes	[20]	774.8	799.4
Financial liabilities	[21]	6,341.4	5,952.0
Other liabilities and subsidies	[21]	1,674.7	2,043.8
		22,036.9	**21,919.7**
Current liabilities			
Provisions	[19]	1,549.9	1,598.7
Financial liabilities	[21]	654.8	1,306.8
Trade payables	[21]	5,039.8	4,838.1
Other liabilities and subsidies	[21]	4,033.1	3,258.7
		11,277.6	**11,002.3**
Liabilities directly associated with assets classified as held for sale	[22]	21.2	0.0
		11,298.8	**11,002.3**
		39,609.0	**38,784.9**

1 We publish the full set of consolidated financial statements at www.enbw.com/report2018-downloads

Cash flow statement

in € million [1]	2018	2017
1. Operating activities		
EBITDA	2,089.6	3,752.4
Changes in provisions	-394.6	-472.3
Result from disposals	-88.4	-317.8
Other non-cash-relevant expenses/income	-27.6	-68.1
Change in assets and liabilities from operating activities	-480.7	-4,671.4
Inventories	[-201.7]	[-27.2]
Net balance of trade receivables and payables	[49.6]	[277.6]
Net balance of other assets and liabilities	[-326.6]	[-4,921.7]
Income tax paid/received	-270.7	81.1
Cash flow from operating activities	**827.6**	**-1,696.1**
2. Investing activities		
Capital expenditure on intangible assets and property, plant and equipment	-1,369.5	-1,419.2
Disposals of intangible assets and property, plant and equipment	77.3	52.8
Cash received from subsidies for construction costs and investments, and tax refunds from recognised exploration expenditure	86.1	113.8
Acquisition of subsidiaries, entities accounted for using the equity method and interests in joint operations	-297.6	-227.9
Sale of subsidiaries, entities accounted for using the equity method and interests in joint operations	297.9	235.4
Cash paid for investments in other financial assets	-750.4	-721.2
Sale of other financial assets	765.3	3,491.0
Cash received/paid for investments in connection with short-term finance planning	10.5	44.3
Interest received	94.4	452.1
Dividends received	190.2	139.6
Cash flow from investing activities	**-895.8**	**2,160.7**
3. Financing activities		
Interest paid for financing activities	-247.0	-425.6
Dividends paid	-312.8	-84.7
Cash received for changes in ownership interest without loss of control	4.6	1.5
Increase in financial liabilities	1,125.1	302.3
Repayment of financial liabilities	-1,425.4	-1,279.8
Payments from alterations of capital in non-controlling interests	-51.8	-55.0
Cash flow from financing activities	**-907.3**	**-1,541.3**
Net change in cash and cash equivalents	**-975.5**	**-1,076.7**
Change in cash and cash equivalents due to changes in the consolidated companies	6.6	300.3
Net foreign exchange difference	5.5	-1.9
Change in cash and cash equivalents due to risk provisions	0.2	0.0
Change in cash and cash equivalents	**-963.2**	**-778.3**
Cash and cash equivalents at the beginning of the period [2]	3,212.6	3,991.6
Cash and cash equivalents at the end of the period	**2,249.4**	**3,213.3**

1 Further information is available in the notes under [31] "Notes to the cash flow statement". We publish the full set of consolidated financial statements at www.enbw.com/report2018-downloads
2 Explanation in the "Changes in accounting policies".

Statement of changes in equity

in € million[1]	Other comprehensive income										
	Subscribed capital and capital reserve[2]	Revenue reserves	Treasury shares	Revaluation of pensions and similar obligations	Currency translation differences	Cash flow hedge	Financial assets at fair value in equity	Entities accounted for using the equity method	Shares of the shareholders of EnBW AG	Non-controlling interests	Total
As of 01/01/2017	**1,482.3**	**1,582.5**	**-204.1**	**-1,784.6**	**-48.2**	**-97.7**	**383.1**	**4.4**	**1,317.7**	**1,898.5**	**3,216.2**
Other comprehensive income				67.7	36.2	-11.5	87.3	-4.1	175.6	13.4	189.0
Group net profit		2,054.1							2,054.1	122.2	2,176.3
Total comprehensive income	**0.0**	**2,054.1**	**0.0**	**67.7**	**36.2**	**-11.5**	**87.3**	**-4.1**	**2,229.7**	**135.6**	**2,365.3**
Dividends									0.0	-84.7	-84.7
Other changes									0.0	366.1	366.1
As of 31/12/2017/ 01/01/2018	**1,482.3**	**3,636.6**	**-204.1**	**-1,716.9**	**-12.0**	**-109.2**	**470.4**	**0.3**	**3,547.4**	**2,315.5**	**5,862.9**
Changes in accounting policies		842.7					-459.5		383.2	11.7	394.9
As of 01/01/2018 after changes in accounting policies	**1,482.3**	**4,479.3**	**-204.1**	**-1,716.9**	**-12.0**	**-109.2**	**10.9**	**0.3**	**3,930.6**	**2,327.2**	**6,257.8**
Other comprehensive income				-74.6	3.2	-68.2	-11.2	1.0	-149.8	-0.8	-150.6
Group net profit		334.2							334.2	133.4	467.6
Total comprehensive income	**0.0**	**334.2**	**0.0**	**-74.6**	**3.2**	**-68.2**	**-11.2**	**1.0**	**184.4**	**132.6**	**317.0**
Dividends		-135.4							-135.4	-139.2	-274.6
Other changes[3]		-1.7							-1.7	-25.2	-26.9
As of 31/12/2018	**1,482.3**	**4,676.4**	**-204.1**	**-1,791.5**	**-8.8**	**-177.4**	**-0.3**	**1.3**	**3,977.9**	**2,295.4**	**6,273.3**

1 Further information is available in the notes under [18] "Equity". We publish the full set of consolidated financial statements at www.enbw.com/report2019-downloads.
2 Of which subscribed capital €709.1 million (31/12/2017: €709.1 million; 01/01/2017: €709.1 million) and capital reserve €774.2 million (31/12/2017: €774.2 million; 01/01/2017: €774.2 million).
3 Of which changes in revenue reserves due to changes in ownership interest of subsidiaries without loss of control of €-1.7 million (31/12/2017: €0.0 million; 01/01/2017: €0.0 million). Of which changes in non-controlling interests due to changes in ownership interest of subsidiaries without loss of control amounting to €-4.2 million (31/12/2017: €0.0 million; 01/01/2017: €0.0 million).

Information on the result of the audit of the consolidated financial statements and the combined management report of the company and the Group for the 2018 financial year

The condensed financial statements for the 2018 financial year that form part of the Integrated Annual Report do not include the notes to the consolidated financial statements and the declaration of corporate management 2018 of the EnBW Group and EnBW AG including the corporate governance report 2018. The full set of consolidated financial statements – including the notes to the consolidated financial statements – and the combined management report for the company and the Group, both for the 2018 financial year, were audited by KPMG AG Wirtschaftsprüfungsgesellschaft as the auditor and Group auditor elected by the Annual General Meeting of EnBW Energie Baden-Württemberg AG on 8 May 2018. Based on its audit, KPMG AG Wirtschaftsprüfungsgesellschaft arrived at the overall conclusion that the audit did not lead to any reservations and issued an unqualified audit opinion. The full set of consolidated financial statements and the combined management report for the company and the Group, both for the 2018 financial year, as well as the unqualified audit opinion issued by the auditor, can be accessed on the website of EnBW Energie Baden-Württemberg AG.

Corporate bodies

The Supervisory Board

Members

- **Lutz Feldmann, Bochum**
  Independent business consultant
  Chairman
- **Dietrich Herd, Philippsburg**
  Chairman of the Group works council for the EnBW Group as well as Chairman of the central works council for the "generation sector" and Chairman of the Philippsburg nuclear power plant works council for the "generation sector" of EnBW Energie Baden-Württemberg AG, Karlsruhe, Deputy Chairman
- **Achim Binder, Stuttgart**
  Deputy Chairman of the Group works council for the EnBW Group, Chairman of the central works council for the "grids sector" of EnBW Energie Baden-Württemberg AG and Chairman of the regional service works council of Netze BW GmbH, Stuttgart (since 1 January 2019)
- **Dr. Dietrich Birk, Göppingen**
  Managing Director of the Verband Deutscher Maschinen- und Anlagenbau e.V. (VDMA), Regional Association for Baden-Württemberg
- **Stefanie Bürkle, Sigmaringen**
  District Administrator of the Sigmaringen district
- **Stefan Paul Hamm, Gerlingen**
  Union Secretary/Head of the Department for Utilities and Waste Management, ver.di Baden-Württemberg
- **Volker Hüsgen, Essen**
  Member of the Group works council for the EnBW Group as well as Chairman of the works council and first Deputy Chairman of the Supervisory Board of Stadtwerke Düsseldorf AG (since 1 October 2018)
- **Michaela Kräutter, Stutensee**
  Union Secretary for Utilities and Waste Management, ver.di Central Baden/North Black Forest district
- **Marianne Kugler-Wendt, Heilbronn**
  Regional Director of ver.di for the districts Heilbronn-Neckar-Franconia and Rhine-Neckar
- **Thomas Landsbek, Wangen im Allgäu**
  Member of the Group works council for the EnBW Group as well as Chairman of the central works council for the "market sector" and Chairman of the Stuttgart works council for the "market sector" of EnBW Energie Baden-Württemberg AG, Karlsruhe
- **Dr. Hubert Lienhard, Heidenheim an der Brenz**
  Supervisory Board
- **Marika Lulay, Heppenheim**
  Chairwoman of the Managing Directors (CEO) and member of the Board of Directors at GFT Technologies SE, Stuttgart (since 14 February 2019)
- **Dr. Wolf-Rüdiger Michel, Rottweil**
  District Administrator of the Rottweil district
- **Gunda Röstel, Flöha**
  Commercial Director of Stadtentwässerung Dresden GmbH and Authorised Officer of Gelsenwasser AG
- **Jürgen Schäfer, Bissingen**
  Member of the Group works council for the EnBW Group and Deputy Chairman of the works council for TransnetBW GmbH, Stuttgart (since 1 January 2019)
- **Harald Sievers, Ravensburg**
  District Administrator of the Ravensburg district (since 1 January 2019)
- **Edith Sitzmann MdL, Freiburg**
  Minister for Finance of the Federal State of Baden-Württemberg and member of the State Parliament of Baden-Württemberg
- **Ulrike Weindel, Karlsruhe**
  Chairwoman of the Karlsruhe works council for "functional units" of EnBW Energie Baden-Württemberg AG, Karlsruhe
- **Lothar Wölfle, Friedrichshafen**
  District Administrator of the Lake Constance district
- **Dr. Bernd-Michael Zinow, Karlsruhe**
  Head of the functional unit Legal Services, Auditing, Compliance and Regulation (General Counsel) at EnBW Energie Baden-Württemberg AG, Karlsruhe
- **Silke Krebs, Berlin**
  Since 1 April 2018, Executive Consultant for Political Communication for the Alliance 90/Green Party parliamentary group in the German Bundestag
  Until 31 March 2018, freelance consultant (strategic and organisational consultancy) (until 31 December 2018)
- **Sebastian Maier, Ellenberg**
  Member of the Group works council for the EnBW Group and Chairman of the works council at EnBW Ostwürttemberg DonauRies Aktiengesellschaft (until 31 December 2018)
- **Arnold Messner, Aichwald**
  Manager for special tasks at Netze BW GmbH, Stuttgart
  Until 26 April 2018, Deputy Chairman of the Group works council for the EnBW Group and, until 26 April 2018, Chairman of the central works council of Netze BW GmbH (until 31 December 2018)
- **Klaus Schörnich, Düsseldorf**
  Until 30 September 2018, member of the Group works council for the EnBW Group and, until 24 April 2018, Chairman of the works council of Stadtwerke Düsseldorf AG (until 30 September 2018)
- **Heinz Seiffert, Ehingen**
  District Administrator (retired) (until 31 December 2018)

Status

- **Active member**
- **Inactive member**

As of 7 March 2019

Further information is available at:
www.enbw.com/supervisory-board

Committees

Personnel committee

- Lutz Feldmann
  Chairman
- Achim Binder (since 1 January 2019)
- Stefan Paul Hamm
- Dietrich Herd
- Edith Sitzmann (since 1 January 2019)
- Lothar Wölfle

- Silke Krebs (until 31 December 2018)
- Arnold Messner (until 31 December 2018)

Audit committee

- Gunda Röstel
  Chairwoman

- Stefanie Bürkle (since 1 January 2019)
- Volker Hüsgen (since 1 October 2018)
- Marianne Kugler-Wendt
- Thomas Landsbek (since 1 January 2019)
- Dr. Hubert Lienhard
- Dr. Wolf-Rüdiger Michel
- Ulrike Weindel

- Sebastian Maier (until 31 December 2018)
- Klaus Schörnich (until 30 September 2018)
- Heinz Seiffert (until 31 December 2018)

Ad hoc committee (since 7 June 2010)

- Dr. Bernd-Michael Zinow
  Chairman

- Dietrich Herd
- Gunda Röstel
- Harald Sievers (since 1 January 2019)

- Stefanie Bürkle (until 31 December 2018)

Finance and investment committee

- Lutz Feldmann
  Chairman

- Achim Binder (since 1 January 2019)
- Dr. Dietrich Birk
- Stefan Paul Hamm
- Dietrich Herd
- Edith Sitzmann
- Lothar Wölfle
- Dr. Bernd-Michael Zinow

- Arnold Messner (until 31 December 2018)

Nomination committee

- Lutz Feldmann
  Chairman

- Dr. Dietrich Birk
- Dr. Wolf-Rüdiger Michel
  (since 1 January 2019)
- Gunda Röstel
- Edith Sitzmann (since 1 January 2019)
- Lothar Wölfle

- Silke Krebs (until 31 December 2018)
- Heinz Seiffert (until 31 December 2018)

Mediation committee (committee pursuant to section 27 (3) German Co-determination Act (MitbestG))

- Lutz Feldmann
  Chairman

- Dietrich Herd
- Thomas Landsbek
- Edith Sitzmann (since 1 January 2019)

- Silke Krebs (until 31 December 2018)

Digitalisation committee (since 1 January 2019)

- N. N.
  Chairman

- Michaela Kräutter
- Dr. Hubert Lienhard
- Marika Lulay (since 14 February 2019)
- Jürgen Schäfer
- Harald Sievers
- Ulrike Weindel

Status
- Active member
- Inactive member

As of 7 March 2019

Further information is available at:
www.enbw.com/supervisory-board

Offices held by members of the Board of Management

- **Dr. Frank Mastiaux**
  Chairman

- **Dr. Bernhard Beck**
  - EnBW Kernkraft GmbH (Chairman)
  - Energiedienst AG
  - Stadtwerke Düsseldorf AG (Chairman)

  - BKK VerbundPlus, Körperschaft des öffentlichen Rechts (alternating Chairman)
  - Energiedienst Holding AG
  - Pražská energetika a.s.

- **Thomas Kusterer**
  - Netze BW GmbH
  - VNG AG (Chairman)

- **Colette Rückert-Hennen**
  (from 1 March 2019)

- **Dr. Hans-Josef Zimmer**
  - EnBW Kernkraft GmbH
  - Netze BW GmbH (Chairman)
  - terranets bw GmbH (Chairman)
  - TransnetBW GmbH (Chairman)

  - Vorarlberger Illwerke AG

Status
- Active member
- Inactive member

Disclosures of office holders pursuant to section 285 No. 10 German Commercial Code (HGB)
- Membership in other statutory supervisory boards
- Membership in comparable domestic and foreign control bodies of business enterprises

As of 7 March 2019

Further information is available at:
www.enbw.com/board-of-management

Other offices held by members of the Supervisory Board

Lutz Feldmann
Chairman
- Villa Claudius gGmbH (Chairman since 1 October 2018)
- Thyssen'sche Handelsgesellschaft mbH

Dietrich Herd
Deputy Chairman
- EnBW Kernkraft GmbH

Achim Binder
- Netze BW GmbH
- NetCom BW GmbH (until 30 July 2018)

Dr. Dietrich Birk
- SRH Holding (SdbR)

Stefanie Bürkle
- SWEG Südwestdeutsche Landesverkehrs-AG
- Hohenzollerische Landesbank Kreissparkasse Sigmaringen, Anstalt des öffentlichen Rechts (Chairwoman)
- Flugplatz Mengen Hohentengen GmbH (Chairwoman)
- SRH Kliniken Landkreis Sigmaringen GmbH (Chairwoman)
- Sparkassenverband Baden-Württemberg, Anstalt des öffentlichen Rechts
- Verkehrsverbund Neckar-Alb-Donau GmbH (naldo) (Chairwoman)
- Wirtschaftsförderungs- und Standortmarketinggesellschaft Landkreis Sigmaringen mbH (Chairwoman)
- Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairwoman)
- Zweckverband Thermische Abfallverwertung Donautal (TAD) (Deputy Chairwoman)

Stefan Paul Hamm
- Netze BW GmbH

Volker Hüsgen
- AWISTA GmbH (since 1 October 2018)
- Netzgesellschaft Düsseldorf mbH (since 12 July 2018)
- Stadtwerke Düsseldorf AG
- RheinWerke GmbH (since 7 June 2018)

Michaela Kräutter
- NetCom BW GmbH (until 30 July 2018)
- Netze BW GmbH (since 14 August 2018)

Marianne Kugler-Wendt
- Bausparkasse Schwäbisch-Hall AG
- EnBW Kernkraft GmbH
- SLK-Kliniken Heilbronn GmbH
- Heilbronner Versorgungs-GmbH
- Stadtwerke Heilbronn GmbH

Thomas Landsbek
- Gemeindewerke Bodanrück GmbH & Co. KG
- BürgerEnergiegenossenschaft Region Wangen im Allgäu eG

Dr. Hubert Lienhard
- Heraeus Holding GmbH
- SGL Carbon SE (until 29 May 2018)
- SMS Group GmbH
- Voith GmbH & Co. KGaA (since 1 April 2018)
- Voith Management GmbH (since 1 April 2018)
- Voith Turbo Beteiligungen GmbH (Chairman) (until 31 March 2018)
- Broetje Automation (Chairman) (since 27 July 2018)
- Heitkamp & Thumann KG (since 24 April 2018)
- Voith Hydro Holding GmbH & Co. KG (Chairman) (until 31 March 2018)
- Voith Turbo GmbH & Co. KG (Chairman) (until 31 March 2018)
- Voith Digital Solutions Holding GmbH (Chairman) (until 31 March 2018)

Marika Lulay
- Wüstenrot & Württembergische AG

Dr. Wolf-Rüdiger Michel
- Kreisbaugenossenschaft Rottweil e.G. (Chairman)
- ITEOS, Anstalt des öffentlichen Rechts (since 1 July 2018)
- Kreissparkasse Rottweil, Anstalt des öffentlichen Rechts (Chairman)
- Schwarzwald Tourismus GmbH
- SMF Schwarzwald Musikfestival GmbH
- Sparkassen-Beteiligungen Baden-Württemberg GmbH
- Sparkassenverband Baden-Württemberg, Körperschaft des öffentlichen Rechts
- Wirtschaftsförderungsgesellschaft Schwarzwald-Baar-Heuberg mbH
- Zweckverband Bauernmuseum Horb/Sulz
- Zweckverband Kommunale Informationsverarbeitung Reutlingen-Ulm (until 30 June 2018)
- Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairman)
- Zweckverband Protec (until 31 December 2018)
- Zweckverband Ringzug Schwarzwald-Baar-Heuberg
- Zweckverband RBB Restmüllheizkraftwerk Böblingen (since 1 January 2019)
- ZTN-Süd Warthausen (since 1 January 2019)

Status
- **Active member**
- **Inactive member**

Disclosures of office holders pursuant to section 285 No. 10 German Commercial Code (HGB)
- Membership in other statutory supervisory boards
- Membership in comparable domestic and foreign control bodies of business enterprises

Further information is available at: www.enbw.com/supervisory-board

As of 7 March 2019

Gunda Röstel
- Universitätsklinikum Carl Gustav Carus Dresden an der Technischen Universität Dresden, Anstalt des öffentlichen Rechts (Deputy Chairwoman)
- VNG AG
- Netze BW GmbH
- Hochschulrat der Technischen Universität Dresden, Körperschaft des öffentlichen Rechts (Chairwoman)
- Stadtwerke Burg GmbH

Jürgen Schäfer

Harald Sievers
- Oberschwabenklinik GmbH (Chairman)
- Gesellschaft für Wirtschafts- und Innovationsförderung Landkreis Ravensburg mbH (WiR) (Chairman)
- Ravensburger Entsorgungsanlagengesellschaft mbH (REAG) (Chairman)
- Bodensee-Oberschwaben Verkehrsverbundgesellschaft mbH (Deputy Chairman)
- Bodensee-Oberschwaben-Bahn VerwaltungsGmbH
- Kreissparkasse Ravensburg (Chairman of the Administrative Board)
- SV SparkassenVersicherung – Lebensversicherung AG
- Zweckverband Oberschwäbische Elektrizitätswerke

Edith Sitzmann
- Landesbank Baden-Württemberg, Anstalt des öffentlichen Rechts (Deputy Chairwoman)
- Landeskreditbank Baden-Württemberg, Förderbank, Anstalt des öffentlichen Rechts (Chairwoman of the Administrative Board) (Chairwoman of the Advisory Board)
- Kreditanstalt für Wiederaufbau, Anstalt des öffentlichen Rechts
- Baden-Württemberg Stiftung gGmbH

Ulrike Weindel

Lothar Wölfle
- Abfallwirtschaftsgesellschaft of the Bodenseekreis and Konstanz districts (Chairman)
- Verkehrsverbund Bodensee-Oberschwaben der Landkreise Bodenseekreis, Lindau und Ravensburg (Chairman) (until 31 December 2018)
- Bodensee-Oberschwaben-Bahn Verkehrsgesellschaft mbH
- Sparkasse Bodensee (Chairman)
- Zweckverband Oberschwäbische Elektrizitätswerke (Chairman)
- Zweckverband Tierkörperbeseitigung Protec (Deputy Chairman) (until 31 December 2018)
- Wirtschaftsförderungsgesellschaft Bodenseekreis GmbH (Chairman)
- Regionales Innovations- und Technologietransfer Zentrum GmbH (RITZ) (Chairman) (until 31 December 2018), (Deputy Chairman) (since 1 January 2019)

Dr. Bernd-Michael Zinow
- TransnetBW GmbH
- VNG AG

Silke Krebs

Sebastian Maier
- EnBW Ostwürttemberg DonauRies AG (until 31 December 2018)
- NetCom BW GmbH (until 31 December 2018)
- Netzgesellschaft Ostwürttemberg GmbH (until 31 December 2018)

Arnold Messner
- Netze BW GmbH (until 31 December 2018)

Klaus Schörnich
- AWISTA GmbH (until 30 September 2018)
- Netzgesellschaft Düsseldorf mbH (until 30 September 2018)

Heinz Seiffert

Status
- **Active member**
- **Inactive member**

Disclosures of office holders pursuant to section 285 No. 10 German Commercial Code (HGB)
- Membership in other statutory supervisory boards
- Membership in comparable domestic and foreign control bodies of business enterprises

Further information is available at: www.enbw.com/supervisory-board

As of 7 March 2019

10.4. Annexe 4 : Rapport annuel 2019 de la société EnBW

Integrated
Annual Report 2019

Excluding the notes and the declaration of corporate management

TRANSFORMATION

EnBW

+++ In light of recent events +++

Dear Reader,

We are currently facing unprecedented challenges due to the corona pandemic. Overcoming this crisis will require solidarity, understanding and a collective effort from all of us.

Just like all energy companies, we have a special responsibility during this time and it is something we are all too willing to take on. As an operator of critical infrastructure, we know how to handle these types of challenges and already began to prepare ourselves at an early stage for the possibility that this outbreak would become a serious pandemic: We have phased contingency plans in place that are practised on a regular basis. An expert task force is working closely together with all specialist departments at our company and with external bodies. While many employees are keeping our day-to-day business running by working from home, the operational teams responsible for our power plants, grid control centres, the supply of water and the disposal of waste are ensuring that our energy supply system is also working safely and reliably during this difficult time.

Furthermore, we are endeavouring within the scope of our capabilities to provide support to our partners using the expertise we have in the technical management of crisis situations. We want to remove any additional burden on our customers by restoring the connections to any cut-off electricity or gas supplies and we are also available to help our customers in any other way we can to the very best of our abilities.

I can assure you that EnBW remains stable and secure.

Best regards,

Frank Mastiaux

Frank Mastiaux
Chairman of the Board of Management

EnBW at a glance

Shaping the Energiewende

Switched off:

Philippsburg nuclear power plant Block 2

Switched on:

EnBW Hohe See and EnBW Albatros offshore wind farms as well as onshore wind farms and photovoltaic parks from Valeco

Generation mix

Installed output in MW 2019

32% renewable energies

Thermal power plants	
Brown and hard coal	4,461
Nuclear power	2,933
Gas	1,165
Pumped storage	545
Other	347

Renewable energies	
Wind	1,660
Pumped storage (with natural flow of water)	1,507
Run-of-river	1,006
Other	225

5.5 million
B2C and B2B customers 2019

23,293
employees 2019

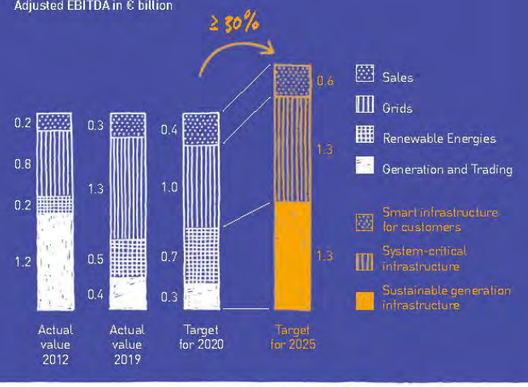
€2.4 billion
adjusted EBITDA in 2019

What sets us apart

- EnBW 2020 strategy largely implemented: realignment and repositioning of the business portfolio has been achieved
- EnBW 2025 strategy: The path to becoming a sustainable and innovative infrastructure partner
- Stable shareholder structure
- Leading position in important sustainability ratings in the energy sector
- First German company to issue a green hybrid bond

Realignment and growth

Adjusted EBITDA in € billion



Infrastructure partner

Expansion of the telecommunications business

We have strengthened our business in the nationwide telecommunications market with the acquisition of the broadband and fibre optic company Plusnet.

Expansion of electromobility

At the end of 2019, we were the largest operator of quick-charging infrastructure in Germany.

Up to 1,000
quick-charging stations are planned across the country by the end of 2020.

62.4 billion kWh
of electricity was transmitted via the grids operated by our subsidiaries in 2019.

Performance indicators of the EnBW Group

Financial and strategic performance indicators

in € million	2019	2018	Change in %
External revenue[1]	13,765.0	20,815.4	-9.9
Adjusted EBITDA	2,432.5	2,157.5	12.7
Share of adjusted EBITDA accounted for by Sales in € million/in %[1]	294.3/12.1	268.4/12.4	9.6/–
Share of adjusted EBITDA accounted for by Grids in € million/in %	1,311.2/53.9	1,176.9/54.5	11.4/–
Share of adjusted EBITDA accounted for by Renewable Energies in € million/in %	482.8/19.8	297.7/13.8	62.2/–
Share of adjusted EBITDA accounted for by Generation and Trading in € million/in %[1]	363.8/15.8	430.8/20.0	-10.9/–
Share of adjusted EBITDA accounted for by Other/Consolidation in € million/in %	-19.6/-1.6	-16.3/-0.7	-142.9/–
EBITDA	2,245.2	2,089.6	7.4
Adjusted EBIT	944.7	957.5	-1.3
EBIT	596.7	875.8	-31.9
Adjusted Group net profit[2]	786.8	438.3	79.5
Group net profit[2]	734.2	334.2	119.7
Earnings per share from Group net profit in €[2]	2.71	1.23	119.7
Retained cash flow	1,240.7	999.1	24.2
Internal financing capability in %[1]	82.5	92.2	–
Total investment[1]	3,315.2	1,786.4	85.6
Net financial debt	6,021.6	3,738.4	61.1
Coverage ratio ALM in %	48.1	51.8	–
Return on capital employed (ROCE) in %	5.2	6.5	–
Weighted average cost of capital before tax in %	5.2	6.3	–
Average capital employed	19,315.1	16,053.3	20.3
Value added	0.0	32.1	-100.0

Non-financial performance indicators

	2019	2018	Change in %
Customers and society goal dimension			
Reputation Index	52.9	51.3	2.9
EnBW/Yello Customer Satisfaction Index	118/157	120/152	-3.3/3.3
SAIDI (electricity) in min./year	15	17	-11.8
Employees goal dimension			
Employee Commitment Index[3]	66	62	6.5
LTIF for companies controlled by the Group[4]/LTIF overall[5]	2.1/3.8	2.3/3.6	-8.7/5.6
Environment goal dimension			
Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	4.4/31.8	3.7/27.9	18.9/–
CO_2 intensity in g/kWh	419	553	-24.2

Employees[6]

	31/12/2019	31/12/2018	Change in %
Employees	23,293	21,775	7.0
Full-time equivalents[7]	21,843	20,379	7.2

1 The figures for the previous year have been restated.
2 In relation to the profit/loss attributable to the shareholders of EnBW AG.
3 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs)).
4 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for companies in the area of waste management as well as external agency workers and contractors).
5 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except external agency workers and contractors).
6 Number of employees excluding apprentices/trainees and inactive employees.
7 Converted into full-time equivalents.

Dear Reader,

We have embarked on the path to transform ourselves from a conventional energy company into a strong partner for energy and infrastructure.

To be a partner for energy and infrastructure, we believe that we must focus on people's living environments and adopt an integrated approach to sectors such as energy, transport, telecommunications and the development of cities and districts. This includes, amongst other things, themes like the supply of energy and the expansion of broadband and electromobility.

Besides significantly strengthening the grid and sales businesses, our EnBW 2020 strategy primarily focussed on making renewable energies one of the main pillars of the company. We now have a broad portfolio of wind farms, hydropower plants and solar parks. We were able to successfully conclude some major projects in the past year, especially in the offshore wind sector, and also start new ones in the area of photovoltaics. A lot has changed in the process: the way we work, the requirements of our customers and the conditions on the market. This is why the title of this year's Integrated Annual Report of EnBW is dedicated to the transformation in the area of renewable energies.

In our updated EnBW 2025 strategy, we will now concentrate on switching over to growth. The first steps in this direction have already been taken. We are significantly expanding the installed output from our renewable generation, driving forward electromobility and will be building liveable residential districts.

We will realise these plans with a strong team behind us – while keeping our main focus on people. This is why we not only want to push forward EnBW as an organisation but also support every single employee in their own personal development. This will help us create the right conditions to promote future growth.

This Integrated Report will take you on a journey through our transformation in the area of renewable energies.

Best regards,

Your EnBW

Playing an active role in shaping the Energiewende

EnBW is transforming itself from a conventional energy company into a sustainable and innovative partner for energy and infrastructure. In the process, we are linking the transport sector with the energy world, for example, as part of the forward-looking and citizen-centred development of cities and districts.

We accept our responsibility for the climate as we do this and are playing an active role in shaping the future of energy. While we continue to push forward the expansion of renewable energies, our grid subsidiaries ensure they can be successfully integrated into the electricity grid. This is promoting the development of so-called smart grids at the same time, which will guarantee that even more renewable energy power plants can be connected to the grid in the future.

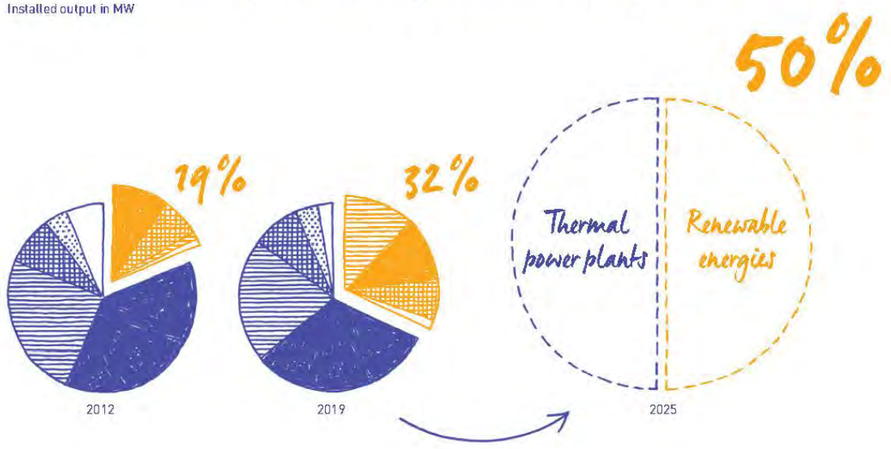
The transformation in the renewable energy sector is in full progress.

EnBW was the first major energy company to announce the gradual phasing out of its coal-fired generation back in 2013. Through the EnBW 2020 strategy, we have developed renewable energies into one of the main pillars of the company and simultaneously reduced conventional generation by more than 40%. Furthermore, we have simplified structures and processes, transformed our corporate culture and increased our innovative strength. We are now well equipped for the challenges of the future as a result. EnBW can grow in new markets, deliver competitive services and respond proactively and flexibly in a rapidly changing business environment.

For us, climate protection is not just a trend, but has been an established part of our activities for many years.

Transformation of the EnBW generation portfolio

Installed output in MW



Thermal power plants	2012	2019
Brown and hard coal	5,021	4,461
Nuclear power	3,333	2,933
Gas	1,154	1,165
Pumped storage	545	545
Other	820	347

Renewable energies	2012	2019
Wind	218	1,660
Pumped storage (with natural flow of water)	1,311	1,507
Run-of-river	882	1,006
Other	116	225

Wind power is now the most important renewable energy source in Germany.

Some 118 gigawatts (GW) of output from renewable energies were installed in Germany in 2018, which covered almost 38% of the gross electricity consumption. 59 GW of this installed output was accounted for by wind energy, 45 GW by solar energy, 5.6 GW by hydropower and 8.4 GW by biomass.

Since 2000, the fixed remuneration offered by the German Renewable Energies Act (EEG) has enabled strong growth in wind power plants in Germany. However, the reform to the EEG in 2017 has put the brakes on this upward trend: The act introduced upper limits to the expansion of renewable energies, the bureaucratic burden and costs for the development of wind farms has increased and the approval times for new power plants have since lengthened dramatically – due to, amongst other things, an increase in the cases of legal action taken against already issued approvals across Germany. The expansion of wind power has collapsed as a result.

We are ardent supporters of the Energiewende and want to continue to use our expertise as an investor, developer and operator of wind and photovoltaic power plants even under these difficult conditions. Today, we are already the third-largest project developer for onshore wind power in Germany and we want to further expand this area and also our engagement in offshore wind power. This is why we are working together with selected international partners to target new growth opportunities abroad. This strategy of selective internationalisation has already shown initial success in France and Sweden.

Photovoltaic power plants will play an increasingly important role in EnBW's future portfolio.

Technical improvements and a significant reduction in prices for solar modules are opening up interesting perspectives. Under certain conditions, photovoltaic power plants can already be operated today without EEG funding. This is why we have decided to make photovoltaics another pillar of our renewable energies alongside onshore and offshore wind power.

In the future, the market, customers and technology development will dictate the direction of the Energiewende to a much greater extent.

The energy world is becoming decentralised and digital, urban and oriented towards citizens. New and agile competitors are now already entering all of the business fields covered by EnBW. The growing dynamism and increasing competition on the energy markets clearly illustrate the importance of being willing to change, having innovative strength and achieving a high pace of change. To this end, we have introduced the "Next Level EnBW" initiative to not only take our Group as an organisation but also personally every single employee at EnBW to a whole new level. The initiative aims, amongst other things, to accelerate the pace of change, promote innovative strength and increase quality with a clear focus on customer centricity, internationalisation, new business and internal cooperation.

The power behind the transformation: water, wind and sun

In our EnBW 2020 strategy, we set ourselves the target of increasing the proportion of our generation accounted for by renewable energies to over 40% by the end of this year.

Today, the Renewable Energies and Grids segments already account for a combined share of over 70% of the operating result. In contrast, earnings from conventional generation have fallen by 80% between 2012 and 2020. We have thus successfully completed the desired transformation of our portfolio in the last few years. We will also continue to focus on the expansion of renewable energies and will invest more than 5 billion euros in corresponding activities in Germany and selected foreign markets up to 2025.

We have long been committed to the use of hydropower.

With around 1,000 MW of installed output from run-of-river power plants and around 2,000 MW from pumped storage and storage power plants, more than 10% of our electricity is generated using the power of water. There are hardly any suitable sites left for new, large hydroelectric and pumped storage power plants in Germany today. Against this background, we are expanding and modernising existing power plants, such as the Forbach power plant in the Black Forest. A concept to turn the existing plant into a modern and highly efficient pumped storage power plant has been developed for the Rudolf-Fettweis Plant. We are also represented on international markets in the area of hydropower. In Switzerland, for example, our Group is one of the leading operators of hydropower plants via participation models.

Wind energy will also continue to play a decisive role in the future.

EnBW has more than tripled its onshore wind power capacities since 2012. We were able to increase capacities by a total of 204 MW in 2017. In 2019, we could achieve little expansion in Germany. In France, we were able to expand our onshore portfolio with the acquisition of Valeco. In the area of offshore wind power, we have constructed the two wind farms EnBW Baltic 1 and EnBW Baltic 2 in the Baltic Sea over the last few years. We completed our third offshore project in 2019: The neighbouring wind farms EnBW Hohe See and EnBW Albatros have a total capacity of 609 MW and are thus the largest offshore project to be built in Germany to date. The 87 wind turbines can supply on aggregate around 710,000 households with electricity and thus save around 1.9 million tonnes CO_2 per year. The project represented the largest investment in the history of EnBW with construction costs of around 2.3 billion euros.

Despite the challenging conditions, we will continue to push forward the expansion of wind power with other planned onshore and offshore projects. Between 2020 and 2025, we want to increase our wind power capacities to 4,500 MW. We are planning, for example, to construct the EnBW He Dreiht wind farm in the North Sea with an output of 900 MW – for the first time without state subsidies.

Selective internationalisation

EnBW has gathered valuable expertise in the planning, construction, operation, maintenance, servicing and direct distribution of wind turbines over the last few years. We aim to use these skills to open up new markets and exploit opportunities for growth internationally.

Turkey

We entered into cooperation with our Turkish partner Borusan back in 2009 and have since developed around 500 MW of generation capacity in the area of onshore wind power.

USA

We believe that the North American market offers great opportunities for the expansion of offshore wind energy. Our own representative offices in Jersey City and Boston will ensure close contact with local cooperation partners. In Morro Bay (California), on the West Coast of the USA, the team is developing the world's first floating offshore wind farm in a joint venture.

Sweden

Sweden is one of the key European markets for the expansion of onshore wind energy. We have already been represented in Scandinavia via our subsidiary Connected Wind Services (CWS) since 2016. And we have been active in Sweden via EnBW Sverige and its subsidiaries since 2018 and currently operate seven wind farms with a total output of 105 MW, while a further 11 MW is currently under construction.

France

In 2019, we acquired the French developer and operator of wind and solar projects Valeco. It has installed output of 276 MW of onshore wind power and 56 MW of solar power, as well as a project pipeline of 1,700 MW.

Taiwan

In cooperation with the Australian investor Macquarie Capital and the Taiwanese industrial company Swancor, we have been developing three offshore wind farm projects since the beginning of 2018. The projects involve the construction of wind turbines with a potential total output of up to 2,000 MW.

Germany's largest solar park Weesow-Willmersdorf

A solar park with an output of 180 MW is currently being constructed in Werneuchen (Brandenburg).

We will produce 180 million kWh of electricity per year on an area equivalent to around 225 football pitches.

This corresponds to the annual consumption of 50,000 households.

On Easter Monday 2019, more than half of the electricity demand across Germany of 61 GW was already covered by solar energy.

We are demonstrating at the solar park in Brandenburg that it is possible to construct solar projects even without state funding.

This demonstrates that the solar market is an attractive proposition. The latest generation of photovoltaic modules work more efficiently than previous technologies. In addition, the price of modules has fallen significantly in recent months. Furthermore, we are able to realise long-term and major projects in Germany and other European markets economically due to our trading and marketing expertise. This vindicates our decision to make photovoltaics the third pillar of our strategy for renewable energies.

For example, we are one of the first companies to construct a solar park whose electricity production costs are lower than those of a new conventional power plant. Therefore, we are financing our latest solar park – Weesow-Willmersdorf in Brandenburg – for the first time without EEG funding. We are thus reinforcing our role as a pioneer in the development, construction, operation and marketing of major solar parks.

As part of our solar strategy, however, we will still continue to rely on solar parks with EEG funding. Companies who claim the lowest level of state funding for the production of solar electricity will have the best chance of having their bid for EEG funding accepted. Our precise planning is paying dividends: In Germany-wide auctions, EnBW has been the fourth most successful company since 2015 – behind three companies that specialise solely in solar power.

The company plans to develop a solar energy portfolio of 600 MW across Germany by 2025. In addition, we are also looking at sites abroad.

Dirk Güsewell

"We started looking at the bigger picture at an early stage."

Interview with Dirk Güsewell, Head of Portfolio Development Generation, EnBW

How long has EnBW been actively involved with renewable energies?
Dirk Güsewell: The foundations for our growth in the area of renewable energies certainly lie in the significant upgrading of this business field as part of our EnBW 2020 strategy. As part of this strategy, we were the first major energy company to start resolutely aligning ourselves to the opportunities offered by the Energiewende back in 2013. Following initial success in Germany, the decision to extend our business activities and teams geographically is the logical continuation of our aspiration to achieve further growth through the expansion of renewable energies using the expertise we have gained.

What has happened since then?
Dirk Güsewell: Our strategy has developed further since then but still remains basically unchanged. Today, we are one of the market leaders in Germany with our offshore and onshore wind farms and open-field photovoltaic power plants, while we are excellently positioned for growth in France with Valeco and are also represented by teams in Sweden, North America and Taiwan. Our aim is to increase the earnings contribution from this business field by 500 million euros by 2020, compared to 2012, and thus more than double it. Although the market conditions have become more challenging, we are also working to achieve further growth in later years.

How is EnBW able to build both the first solar park and first wind farm without state funding?
Dirk Güsewell: This is possible due to really impressive advances in the electricity production costs for these technologies across all value-added stages. Our contribution is that we possess the required long-standing experience in planning, construction and operation and have a good overview of the market at all value-added stages. And we perhaps also started looking at the bigger picture earlier than other competitors. Incidentally, we believe that this is a fantastic development that will give the Energiewende new impetus and momentum in the future.

What does selective internationalisation mean?
Dirk Güsewell: We can generate value through growth abroad – above and beyond the potential offered by our home market of Germany. In addition, internationalisation represents an opportunity for us – both for cultural development and for the acquisition of new talent. This internationalisation is "selective" in the sense that we choose our target markets very deliberately so that we will be able to take up a prominent position on these markets.

Cultural change for new energy

Using the "ONE EnBW" programme, we were able to simplify our structures and processes, implement efficiency measures that saved 1.4 billion euros up to 2019 and open up new business fields.

The EnBW 2020 strategy also had an impact internally: The Group is now an organisation that has quick decision-making paths and is oriented to the market and customers.

The flexibility and innovative strength of the new EnBW are reflected in the design of its working worlds: spacious areas enable agile forms of independent working and promote a culture of open discussion and network-based learning. Events such as the interactive management forum – a biannual event for the top three management levels – are a symbol of this new team culture. At the Group-wide Innovation Campus, every employee at EnBW is given the opportunity to become an intrapreneur, contribute their own ideas and develop them further within the Group.

The market, customers and technology are already dictating the rapid pace of the Energiewende today: other young and agile competitors are entering the market and customers are demanding individual and digitally networked solutions. New technologies demand that all project developers constantly examine the market for any new opportunities. We are preparing ourselves for this "sprint logic" with the EnBW 2025 strategy: Targeted coaching of employees and selective external recruiting will allow the company to anticipate market developments. New, agile management models and forms of cooperation will increase the pace at which we work in the Group. This will enable us to keep on shaping a faster and more complex energy world together with our employees.

Volker Reinhard

"We are supplementing our long-standing core expertise with new skills."

Interview with Volker Reinhard, Head of HR, Generation Sector, EnBW

What changes have taken place in the area of generation at EnBW?
Volker Reinhard: EnBW was characterised by the operation of large, labour-intensive coal, nuclear and hydropower power plants. Our activities were mainly focused in Baden-Württemberg. Today, our wind and solar power plants are distributed across Germany, which is why we have established branches in Trier, Erfurt, Hamburg and Berlin. A lot has also changed from a structural perspective. Generation used to be organised as its own company but today the project planning, construction and operation of power plants is combined in business units. Agile working methods support the project work and are set up in parallel to the line organisation.

What new skills does EnBW require in the area of renewable energies?
Volker Reinhard: In the case of specialist tradesmen, the basic training requirements for employees have remained almost the same. In contrast, our project work has changed fundamentally. We have to adapt much more quickly today to numerous modern technologies and further training has now become much more significant than in the past. Specialist skills are required, in particular, for the realisation of large wind, solar or hydropower projects. This ranges from the logistical organisation of these major projects through to special geological expertise for the deep foundations required by wind turbines. This is why we are always pleased to find employees who already have experience in these areas. As we have already gained a very good level of knowledge at our site in Hamburg over the last few years, we are also able to use this very high level of expertise to provide relevant training ourselves. In addition, EnBW remains in contact with colleges and universities to assess what qualifications we will need in the future. An important factor is the geographical mobility of our employees, not only within Germany but also increasingly internationally.

What does the "Next Level EnBW" initiative mean for the area of generation and especially for renewable energies?
Volker Reinhard: We have set ourselves the following goal as part of "Next Level EnBW": We want to be proactive and flexible from both a strategic and organisational perspective to ensure that we have a presence on all relevant markets. This includes selective internationalisation. We will also organise our portfolio so that it is stable and sustainable. As larger power plants will play a more important role in the future, we will keep a close eye on current and future generation technologies – such as floating wind turbines. This will enable us to continue to operate profitably and add our own value to Group earnings.

Why should people apply to work at EnBW?
Volker Reinhard: A job at EnBW offers many exciting challenges and will leave you wanting even more. I believe that there has never been such a good opportunity to help fight climate change than to find a meaningful vocation in the generation of renewable energies. And EnBW is amongst the frontrunners in this field. In this way, we can try to make the world that little bit better.

Asking the Experts: "How has your job changed?"

We built EnBW Baltic 1 back in 2011, while EnBW Hohe See and EnBW Albatros were completed in 2019. What has changed during this time?
Stefan Kansy (Head of New Construction Projects at EnBW): EnBW Baltic 1 was the first commercial offshore wind farm in Germany to be placed into operation. The offshore wind farm EnBW Baltic 2 – which was completed in 2015 – surpassed EnBW Baltic 1 in all dimensions. The planning and logistical challenges faced in the construction of our third offshore wind farm project EnBW Hohe See/Albatros were even higher: Each of the 87 wind turbines is three times larger than the ones at Baltic 1, the turbines are located 100 km from the coast in the North Sea instead of 16 km out in the Baltic Sea and the total capacity of Hohe See/Albatros is twelve times that of Baltic 1. This clearly illustrates how dynamically the skills at EnBW have developed in the project planning for large offshore wind farms.

There are now an increasing number of interdisciplinary projects. What does "working beyond departmental boundaries" mean to you?
Thorsten Jörß (Head of Project Development for Photovoltaics): A large EnBW team ranging from technicians and purchasers through to lawyers participates in the development and implementation of a solar park project. That makes agile working models essential. We are constantly searching for new PV sites across Germany throughout the year. If the regional conditions are favourable, we begin the detailed planning work. However, we can only implement our plans if we are successful in the corresponding EEG auction. And we all work together to achieve this goal.

How has your job working with local authorities in Baden-Württemberg changed in the last few years?
Rico Goede (EnBW Local Authority Consultant): Citizens today want to be a part of the Energiewende. At the same time, our customers and the local authorities are still concerned about their own autarchy. Involving mayors and town councils in the planning process at an early stage helps to gain acceptance for the project amongst citizens and thus secure the long-term success of the project. This is why our relationship management department accompanies the process of political decision-making at the local level from the very beginning. At the same time, we also examine the local PV market at an early stage of the planning.

The Energiewende is also changing the role played by our customers. Mr Reitze, why are local authorities becoming electricity producers?
Armin Reitze (Mayor of Leibertingen): The municipality of Leibertingen wanted to make its contribution to pushing forward the Energiewende. EnBW discussed our proposals with us and implemented them to our satisfaction. The new solar power plants barely disturb anybody here. Photovoltaic plants are only permitted on certain sites such as on land with a low agricultural yield. There are many sites of this type in the Swabian Alb region. And the impact on nature due to soil sealing is limited.

"The majority of the bonds that we issue on the market in future will be green bonds."

Ingo Peter Voigt

Interview with Ingo Peter Voigt, Head of Finance, M&A and Investor Relations, and Peter Berlin, Director for Capital Markets, both at EnBW.

How has the financing strategy at EnBW changed over the last few years?
Ingo Peter Voigt: As part of our strategic repositioning through EnBW 2020, we did not just significantly intensify the expansion of renewable energies but also focussed on other aspects of sustainable supply and sustainable business, such as restructuring and expanding the grids and investing in e-mobility. Accordingly, we also rigorously updated our financing strategy and made it more sustainable. EnBW has raised 1.5 billion euros solely through the issuing of green bonds in the last two years. Our message is clear: The majority of the bonds that we issue on the market in future will be green bonds.

What are green bonds?
Peter Berlin: Bonds are "green" when they finance investment in sustainability goals. There has been strong demand on the markets for this type of bond. Our green bonds especially address a wider group of investors who invest in sustainable products out of conviction.

How does EnBW use the proceeds from green bonds?
Ingo Peter Voigt: We have used the proceeds from the green bonds in the area of offshore wind power, primarily for the wind farms EnBW Hohe See and EnBW Albatros which were completed at the turn of the year. In addition, we are investing in onshore wind, e-mobility and photovoltaic projects.

Peter Berlin

How does EnBW ensure transparency with respect to the use of the funds?
Ingo Peter Voigt: Issuers of green bonds have to guarantee in advance that the funds raised will be invested in green projects and subsequently provide their investors with annual verification of the sustainable use of the funds and a report on the impact on the environment.
Peter Berlin: Which standards apply to green bonds and what the word "sustainable" actually means must, therefore, be defined clearly and understandably for all market participants. The first standards were set by the European Commission with their guidelines on climate-related reporting for companies. Other guidelines are based on the proposals by the Technical Expert Group on Sustainable Finance and the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) appointed by the Financial Stability Board of the G20.
Ingo Peter Voigt: EnBW participated in and actively contributed to the relevant working groups at a very early stage. At the same time, we also integrated the results into our own form of reporting. It is for this reason that it was relatively easy for us to establish the institutional framework for the issuing of green bonds and to have it certified by renowned sustainability rating agencies. This guarantees to all investors that the green bonds issued by EnBW are sustainable.

Our future has already begun

The Energiewende has long since arrived in urban areas. This has given a whole new dynamic to the transformation of supply systems, in which renewable energies are also playing an important role.

The focus in future will be on how to network previously separate infrastructures such as energy, transport, telecommunications and urban development.

Efficient and effective infrastructure will be an important theme for all stakeholders, whether private consumers, industrial customers or local authorities. EnBW is making this kind of intelligently networked infrastructure available to its customers.

We are a strong partner for the careful planning, reliable operation and sustainable development of complex infrastructure. Through the smart networking of our products and services, we ensure, for example, a high level of energy self-sufficiency and mobility within new districts. Carefully planned infrastructure guarantees sustainability and efficiency in the provision of electricity, heating and cooling.

Renewable energies will be integrated into district development locally, regionally and supraregionally to enable a sustainable supply of green energy: The local generation of electricity using combined heat and power plants, solar power plants and biogas plants makes environmental sense. Virtual power plants will handle the marketing of the energy produced.

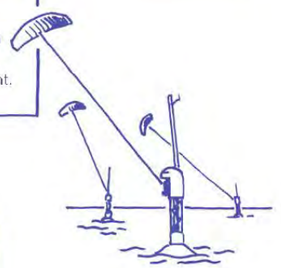
Ideas for the future

We already embarked on the path to the future long ago with our new products and business models. The following selection of EnBW innovations from the area of renewable energies shows the direction in which we are headed.

EnBW Asset RADAR
EnBW Asset RADAR (Reporting and Data Analytics for Renewables) uses artificial intelligence to identify technical faults on wind power plants at an early stage and helps avoid any subsequent damage. Savings of several millions of euros were achieved using EnBW Asset RADAR in 2018.

Sun and wind forecasts
Energy supply companies are increasingly dependent on wind and sunshine forecasts due to the expansion of renewable energies. EnBW is participating in an EU project that aims to improve the quality of weather forecasts.

Offshore kites
Flying systems could enable the harnessing of upper atmospheric layers with their energy-rich and stable wind speeds for electricity generation. EnBW is participating in a project to develop a fully automated high-altitude wind power plant.



Green gases
Since the beginning of 2019, the EnBW subsidiary ZEAG has been generating green hydrogen at the "Harthäuser Wald" wind farm. Energiedienst already opened a hydrogen electrolysis plant in Wyhlen that is operated using hydropower in 2018.

Floating solar power plants
The EnBW subsidiary Erdgas Südwest is realising the largest floating photovoltaic power plant in Germany on the Maiwald quarry lake in Renchen. If the green electricity is not consumed on-site at the gravel plant, it flows into the public grid. The operator is thus able to save around 560,000 kg of CO_2 per year.

Floating wind power plants
Floating platforms could be used to exploit the wind power potential in deeper waters. In cooperation with partners, EnBW is developing various different concepts that would be suitable for opening up new international offshore wind energy regions.

Contents

Navigation

The integrated management of EnBW comprises financial and non-financial goals in the dimensions:

Finance | Strategy | Customers and society | Employees | Environment

TSR Our key performance indicators are labelled with this symbol.

The cross-references take you to further information within this report or to the definition of terms in the glossary in the service section at the end of the report. You will also find the financial terms here.

Note

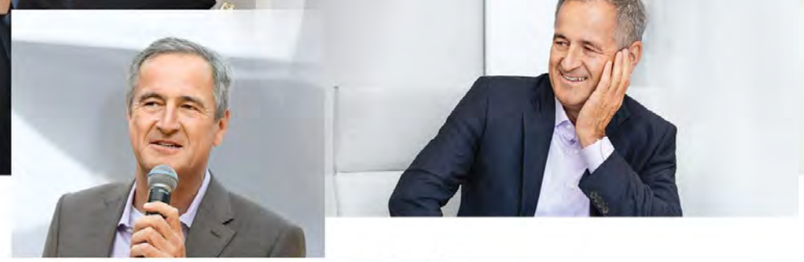
We have also published an online version of the Integrated Annual Report 2019 at www.enbw.com/report2019.

The full set of financial statements of the EnBW Group 2019 including the notes to the consolidated financial statements and the declaration of corporate management 2019 of the EnBW Group and EnBW AG, as well as the corporate governance report 2019 are not included in this Integrated Annual Report 2019. Together with the unqualified auditor's report, they form part of the Integrated Annual Report 2019 – Extended Version, which is available exclusively in PDF format on our website at www.enbw.com/report2019-downloads. All financial publications for the 2019 financial year can be found there.

The cross-references and Internet links do not form part of the audited management report.

Integrated Annual Report 2019 of **EnBW**

The Board of Management



"The infrastructure and energy world of the future will be sustainable and green, decentralised and digital, urban and cooperative. We are already well on the way towards getting there."

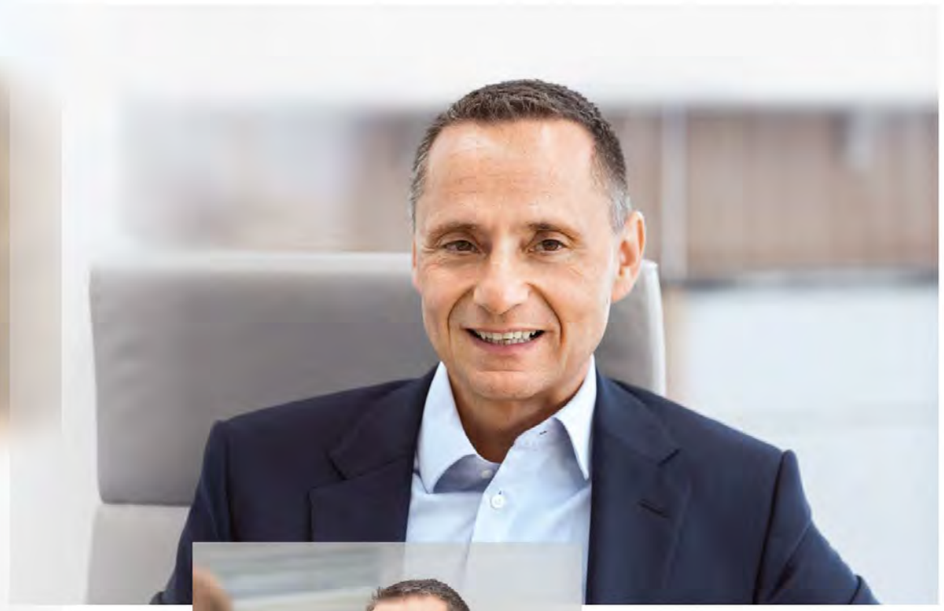
Frank Mastiaux

Dr. Frank Mastiaux

born 1964 in Essen
- Chairman of the Board of Management
- Chief Executive Officer since 1 October 2012
- appointed until 30 September 2022
- lives in Stuttgart

"We want to grow sustainably in the next phase of our strategy. Our financing activities will consistently adhere to our corporate strategy, which is why the majority of our bonds will be green bonds in future."

Thomas Kusterer



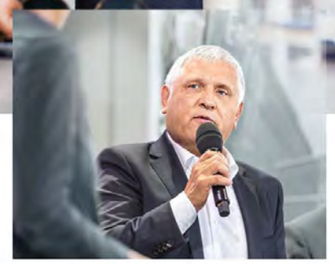
Thomas Kusterer

born 1968 in Pforzheim
- Member of the Board of Management
- Chief Financial Officer since 1 April 2011
- appointed until 31 March 2024
- lives in Ettlingen

Integrated Annual Report 2019 of **EnBW**

Dr. Hans-Josef Zimmer

born 1958 in Merzig
- Member of the Board of Management
- Chief Technical Officer since 1 January 2012
- appointed until 31 May 2021
- lives in Steinfeld (Pfalz)



"EnBW plans to invest more than five billion euros by 2025 in the further expansion of renewable energies."

Hans-Josef Zimmer

"The ideas, motivation and drive of our employees will help us to switch over to growth. As we do this, we will be breaking new ground – and the focus will be on people."

Colette Rückert-Hennen

Colette Rückert-Hennen

born 1961 in Leverkusen-Opladen
- Member of the Board of Management and Director of Personnel
- Chief Human Resources Officer since 1 March 2019
- appointed until 28 February 2022
- lives in Karlsruhe

Letter to shareholders

Frank Mastiaux
Chairman of the Board of Management

Dear Sir or Madam, Dear Shareholders, Employees and Friends of EnBW,

We have been transforming ourselves from a conventional energy company into a strong and innovative partner for energy and infrastructure for the last eight years. We have learned to consider the central themes and trends of our time, such as climate protection, the mobility transition, digitalisation and urbanisation, as opportunities to secure the future viability of our company. We have made the ability to change into one of our key skills.

A successful and eventful 2019 financial year

We developed the EnBW 2020 strategy in 2013 with the target of reaching the same level of earnings in 2020 as in 2012: an adjusted EBITDA of €2.4 billion. The strategy has been rigorously implemented since then and we have already achieved our earnings target for 2020 one year early. In 2020, we will conclude the fundamental transformation of the business portfolio to meet the requirements of a new energy world. The fact that the earnings contributions made by the individual segments have been completely transformed in comparison to 2012 demonstrates how profoundly we have changed over the last few years. We have also been able to improve in the non-financial goal dimensions: The good reputation of EnBW amongst important stakeholders has once again improved, while customer satisfaction and supply reliability are at a high level. The trust placed in the competitiveness and future viability of the company by our employees has increased and occupational safety has also improved further. The expansion of renewable energies is continuing according to plan, while the CO_2 intensity of our own generation of electricity has fallen.

We initiated many new things and continued with others – across all segments – in 2019. Here are some examples:

In the Sales segment, we have now achieved growth two years in a row after considerable repositioning efforts. Our subsidiary Senec is one of the top 3 suppliers on the German market for home storage systems for solar power plants. By expanding our public charging network for electromobility and through collaborations with renowned partners, we currently have the most comprehensive charging infrastructure for e-cars in Germany. In Baden-Württemberg, municipal utilities, suppliers and local authorities worked together under our leadership to establish a core charging network for electric vehicles. The acquisition of the broadband provider Plusnet in 2019 was a major step in building a strong position for ourselves on the nationwide telecommunications market in Germany.

The Grids segment is continuing to expand the transmission grids, converting them into smart grids and integrating various measures for electromobility in the process. A new participation model for the transmission grids that enables local authorities to acquire shares in Netze BW and thus play a part in the economic success of our electricity and gas grids has lifted the quality of our partnerships with local authorities to a whole new level.

In the Renewable Energies segment, the acquisition of the French developer of wind and solar projects Valeco is moving us forward and opens up potential for international growth. We have also completed the largest offshore wind project to be built in Germany to date – EnBW Hohe See and EnBW Albatros with a total output of 609 MW. In addition, we made the decision in 2019 to take on the construction of the largest solar park in Germany with an output of 180 MW without state funding. To finance this and other investments, we issued green hybrid bonds with a total volume of €1 billion in 2019 – the first German company to do so.

In the Generation and Trading segment, we continued to push forward the transformation of our portfolio. The proportion of CO_2 intensive power plants has fallen by around 40% since 2012. In 2019, we had our bid accepted for the construction of a new gas turbine power plant as special technical equipment for grids and the Philippsburg 2 nuclear power plant was shut down for good on New Year's Eve.

Please allow me at this point to comment on energy policy: We are following the deviations of the Coal Phase-out Act from the recommendations made by the Coal Commission with some concern. The law is now detrimental to climate protection and detrimental to a sustainable Energiewende, especially in southern Germany. Therefore, we are calling on the German government to return to the recommendations made by the Coal Commission and also to improve the planning of the expansion of renewable energies.

Switching over to growth

Following our realignment and repositioning phase, we have now switched our priority and are on track for growth. We have set ourselves the target of an operating result of €3.2 billion in 2025. The acquisitions of Valeco and Plusnet in 2019 were already the first steps in this direction. As part of our EnBW 2025 strategy, we are transforming ourselves into a sustainable and innovative infrastructure partner for our customers and other stakeholders. In the process, we are also branching out beyond the traditional boundaries of the energy sector to open up new growth areas for our core expertise – the safe and reliable construction and operation of critical infrastructure. Urban infrastructure is a good example of one of these growth fields. We understand this to be the smart networking of energy, transport, telecommunications, security and more in the public sphere. However, we aren't going to just approach this from a technical perspective – we want to create liveable districts for people.

We are striving to make the business activities at EnBW even more sustainable in future – an ambitious goal for which the security of supply must be addressed during its realisation. As in the previous strategy period, the achievement of these targets will require the outstanding performance of the whole team at EnBW and plenty of creativity, while always placing the focus on the customer. We have already achieved this once.

Yours sincerely,

Frank Mastiaux

Dr. Frank Mastiaux
Chairman of the Board of Management

Report of the Supervisory Board

Lutz Feldmann
Chairman of the Supervisory Board

The Supervisory Board dutifully and comprehensively performed all of the tasks incumbent on it in the 2019 financial year as required by law and the Articles of Association. It regularly advised the Board of Management on its management of the company and continuously accompanied and monitored all important management measures for the Group. In the process, the Supervisory Board was involved in all decisions of fundamental importance to the company and the Group.

The Board of Management regularly, comprehensively and promptly informed the Supervisory Board about all relevant aspects of intended business policies and other fundamental issues relating to business planning and also provided reasons for any discrepancies between the actual development of business and the plans and targets reported at an earlier date. In addition, the Board of Management informed the Supervisory Board about the economic position of the company and the Group including, amongst other things, the profitability of the company (especially the equity), the development of business (especially the revenue and earnings, the net assets, financial position and results of operations, as well as HR development at the company) and those business transactions that could be of significant importance for the profitability or liquidity of the company. In addition, the Board of Management informed the Supervisory Board about the risk situation of the Group and of individual areas of the Group, corporate strategy and planning, risk management, the internal control system and compliance.

Key topics of the discussions at the plenary meetings of the Supervisory Board

In the 2019 financial year, the Supervisory Board dealt extensively with verbal and written reports and proposals for resolutions issued by the Board of Management at its seven ordinary meetings on 15 February 2019, 27 March 2019, 7 May 2019, 11 July 2019, 27 September 2019, 7 November 2019 and 4 December 2019, an extraordinary meeting on 7 March 2019 and through two written resolution procedures. Furthermore, it requested reports and information from the Board of Management on individual topics, which were comprehensively provided in a timely manner in each case. The discussions and resolutions at the plenary meetings of the Supervisory Board focused on the following key issues:

- In-depth consultations and discussions with the Board of Management about long-term strategic planning (with a focus on offshore and onshore wind power and critical infrastructure)
- Consultation on the personnel strategy
- Consultation on the implementation status of the sales strategy
- Consultation on the results of the negotiations with the commission on "Growth, Structural Change and Employment" of the German Federal Ministry for Economic Affairs and Energy (so-called "Coal Commission")
- Consultation on issues relating to the sustainable procurement of hard coal from Colombia and Russia
- Consultation on climate protection activities by the company
- Approval for the acquisition of all shares in the Valeco Group (development, construction and operation of wind and solar energy), France, by EnBW France GmbH
- Approval for the acquisition of all shares in Plusnet GmbH and indirectly in its subsidiaries by EnBW Telekommunikation GmbH
- Consultation on the expansion of the quick-charging infrastructure for electromobility
- Approval for the submission of bids as part of the EU tender process "Special technical equipment for grids" for the site in Marbach and for a project budget in the event that the bid was accepted (as it has been in the meantime)
- Approval of the scheduled sale of the remaining 6% shareholding in EWE Aktiengesellschaft
- Approval for the conclusion of an LNG procurement contract with Novatek Gas & Power Asia Pte. Ltd.
- Approval for the realisation of the Weesow-Willmersdorf solar park
- Consultation on opening up Netze BW GmbH for indirect investment by local authorities of up to 24.9% and approval for the measures under corporate law required for this purpose
- Consultation on the financing strategy, including in particular the approval for the issuing of two green hybrid bonds with a total volume of €1 billion in 2019
- Approval of financing measures for Pražská energetika a.s. (PRE)
- Regular consultation on the development of the financial ratings of EnBW AG
- Approval for the amendment to the plan for the allocation of responsibilities proposed by the Board of Management due to Dr. Bernhard Beck stepping down from the Board of Management and Colette Rückert-Hennen being appointed to the Board of Management
- Appointment of Colette Rückert-Hennen as the Director of Personnel of EnBW AG
- Consultation on the reform of the German Corporate Governance Code and the impact of the law for the implementation of the second shareholder rights directive ("ARUG II")
- Amendment to the rules of procedure for the Supervisory Board
- Consultation on corporate governance and the issuing of the annual declaration of compliance
- Regular reporting on the operation, safety and, where relevant, dismantling of the nuclear power plants
- Consultation on the status of the projects to construct the waste material processing centres and waste storage facilities in Philippsburg and Neckarwestheim, as well as approval for the amendment of the budget for the projects
- Approval of the measures for the corporate financing of TransnetBW GmbH by EnBW AG in connection with the new grid construction projects SuedLink and ULTRANET
- Regular reporting on major investment projects, including EnBW Hohe See and EnBW Albatros, as well as other projects that form part of the generation strategy (renewable and conventional generation)
- Consultation on the current status and strategic issues related to the engagement of EnBW in Turkey as part of the joint venture Borusan EnBW Enerji yatirimlari ve Üretim A.S., with a focus on, amongst other things, the impacts of the political events and developments in Turkey
- Approval to finance the Saros wind project of Borusan EnBW Enerji yatirimlari ve Üretim A.S. (JV)
- Approval of the budget for the 2020 financial year and acknowledgement of the medium-term planning for the period 2021 to 2022 consisting of the Group earnings, finance, investment and personnel plans, as well as the result (HGB) and liquidity planning of EnBW AG
- Defining the level of the short-term variable remuneration for the Board of Management for 2018 and the long-term variable remuneration for the Board of Management for 2016 (performance period 2016 to 2018)
- Defining the targets for the short and long-term variable remuneration for the Board of Management for 2020
- Consultation on the annual compliance and data protection report and the agenda for the following period
- Regular reporting on the development of market prices for electricity, fuels and CO_2
- Regular reporting on the key indicators for occupational safety and health protection and exceptional events in the EnBW Group
- Approval of the proposals made at the Annual General Meeting, including the election of the auditor for the 2019 financial year and for the (by-)election of members of the Supervisory Board

Aside from the meetings, the Board of Management informed the Supervisory Board in writing about all business transactions of particular importance for the company or the Group. In addition, there was ongoing communication between the Chairman of the Supervisory Board and the Board of Management, particularly with the Chairman of the Board of Management, in order to discuss issues relating to the strategic positioning, planning, business development, risk situation, risk management, compliance, important individual transactions and currently pending decisions.

There was a consistently very high attendance rate at the individual meetings of the Supervisory Board. The majority of the members of the Supervisory Board attended all meetings of the Supervisory Board. No member of the Supervisory Board participated in less than half of the meetings.

Work of the committees

In order for the Supervisory Board to perform its functions efficiently, the committees it set up once again met regularly in the past financial year. The respective members of the committees are listed on p. 133 of the Integrated Annual Report 2019. The Chairpersons of the committees regularly reported comprehensively on the work of the committees at each subsequent plenary meeting of the Supervisory Board.

Corporate governance

The Supervisory Board also paid close attention to the various issues relating to corporate governance in the 2019 financial year. These issues are described in detail in the corporate governance report. The corporate governance report is part of the (Group) declaration on corporate management, which the company has published on its website (www.enbw.com/corporate-governance) in accordance with section 289 f (1) sentence 2 and section 315 d sentence 2 of the German Commercial Code (HGB).

Audit of the annual and consolidated financial statements

Following a thorough examination by the audit committee, the Supervisory Board undertook a detailed review of the annual financial statements and consolidated financial statements as of 31 December 2019 that were audited and issued with an unqualified audit opinion by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, and of the combined management report including the non-financial declaration for the 2019 financial year.

The final results of its own reviews did not lead to any reservations on behalf of the Supervisory Board. It approved the audit results of the independent auditor and endorsed the annual financial statements prepared by the Board of Management as of 31 December 2019 – which have thus been ratified – and the consolidated financial statements as of 31 December 2019, as well as the combined management report including the non-financial declaration for the 2019 financial year.

Reference to the complete version of the report of the Supervisory Board

Further details on the topics "Work of the committees", "Corporate governance", "Audit of the annual and consolidated financial statements" and "Personnel changes at the level of the Board of Management and Supervisory Board" can be found in the full version of the Report of the Supervisory Board made available to the public on the company's website at www.enbw.com/corporate-governance.

Karlsruhe, 20 March 2020

The Supervisory Board

Lutz Feldmann
Chairman

About this report

Integrated reporting

In this Integrated Annual Report – as in previous years – we also take ecological and social aspects of the company's activities into account as well as economic aspects. We have published an Integrated Annual Report based on the recommendations of the International Integrated Reporting Council (IIRC) since the 2014 financial year, with the aim of achieving a holistic representation of the performance of the company. Based on the concepts behind integrated reporting, we strive for the comprehensive integrated management of the company through the implementation of the EnBW 2020 strategy and the subsequent EnBW 2025 strategy. By presenting financial and non-financial corporate goals in the dimensions of finance, strategy, customers and society, employees and environment, we are seeking to promote integrated thinking within the company and emphasise the importance of being comprehensively oriented towards performance and our stakeholders. We measure the achievement of our goals using key performance indicators. Our ambitions are underlined by the work and membership of Thomas Kusterer, member of the Board of Management of EnBW, in the IIRC as well as in the EU Technical Expert Group on Sustainable Finance (TEG) (Glossary, from p. 139). The "Building Public Trust Award 2019", which we received from PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft for the Integrated Annual Report in 2018, confirms our commitment in this area. More about integrated reporting at EnBW can be found at www.enbw.com/integrated-reporting.

The Integrated Annual Report 2019

www.enbw.com/report2019

The Integrated Annual Report 2019 presents financial and non-financial corporate goals in the following dimensions:

Finance · Strategy · Customers and society · Employees · Environment

This promotes integrated thinking within the company and emphasises the importance of being comprehensively oriented towards performance and our stakeholders.

KPI We measure the achievement of our goals using key performance indicators.

Overview of financial publications 2019

Integrated Annual Report 2019
The report contains the combined management report of the EnBW Group and EnBW AG, as well as the condensed version of the consolidated financial statements without the notes to the financial statements. It is available in print and in PDF format. Selected content from this report and additional information on aspects of sustainability can be found in the online report at www.enbw.com/report2019.

Integrated Annual Report 2019 – Extended Version
The extended version of the Integrated Annual Report 2019 comprises the full set of financial statements of the EnBW Group including the notes to the consolidated financial statements and the Declaration of Corporate Management. This document is exclusively available in PDF format.

Declaration of Corporate Management 2019
of the EnBW Group and EnBW AG including the Corporate Governance Report 2019. This document is contained in the Integrated Annual Report 2019 – Extended Version but is also available separately in PDF format.

Financial statements of EnBW AG 2019
This report is published in PDF format and contains the annual financial statements of EnBW AG.

All documents relating to the financial statements for the 2019 financial year can be found at www.enbw.com/report2019-downloads.
We publish the quarterly statements and the six-monthly financial report at www.enbw.com/financial-publications.

Together with existing legal requirements for strengthening non-financial reporting by companies in their management reports and Group management reports (CSR Directive Implementation Act), the reporting principles and elements of the IIRC create the foundations for integrated reporting. The Integrated Annual Report 2019 of EnBW contains the combined management report of the EnBW Group and EnBW AG in accordance with the regulations found in commercial law. The full consolidated financial statements including the notes to the consolidated financial statements and the (Group) declaration of corporate management including the corporate governance report are not included in this report and they are available to download at www.enbw.com/report2019-downloads.

The contents of this Integrated Annual Report exclusively serve to provide information and do not constitute an offer or an investment recommendation. Please take this into consideration and also refer to the other important notes on p. 144.

Important aspects of reporting

Main elements of reporting in 2019

Topic	Further development	Page reference
Business model	> Adapting the business model according to the ongoing strategic development	page 32 ff.
Strategy	> Ongoing strategic development: continuing the EnBW 2020 strategy and the achievement of its goals; introduction of the EnBW 2025 strategy	page 41 ff.
Materiality analysis	> Stabilising the materiality analysis process > Closely linked to the process for developing the company's strategy	page 51 f.
Interdependencies	> Presenting the interrelationships between key performance indicators	page 461

In our concise and transparent reporting, we aim to meet the increased needs of stakeholders for more information. We use our regular materiality analysis process to ensure that all of the key issues from the past financial year are included in the Integrated Annual Report. We are introducing the new EnBW 2025 strategy in parallel to the existing EnBW 2020 strategy. In this context, we will continue to report transparently on the achievement of the goals for the EnBW 2020 strategy.

Through the participation of the EnBW Chief Financial Officer on the international Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139), EnBW actively supports the strengthening of climate-related risk reporting by companies (www.enbw.com/responsibility). An overview of the contents for this complex range of topics can be found in the index on TCFD recommendations on p. 122.

We will also strive in future years to continuously improve our integrated reporting. Our plans for 2020 thus include the continuous further development of the content of this report in accordance with the requirements for a non-financial declaration and the disclosures recommended by the TCFD.

Basis for the presentation of the report

The information about the net assets, financial position and results of operations of the EnBW Group is based on the requirements of the International Financial Reporting Standards (IFRS), and, where applicable, German commercial law and German accounting standards (GAS). We have fully integrated the non-financial declaration pursuant to sections 298b and 315b HGB into the combined management report based on our integrated reporting. Internal control mechanisms ensure the reliability of the information presented in this report. Furthermore, this Integrated Annual Report is based on the recommendations for reporting principles and reporting elements contained within the IIRC framework.

The selection of topics and the level of detail given to them in this Integrated Annual Report is based, as in previous years, on their materiality. The materiality analysis process pays particular attention to the key themes discussed internally in the management bodies and addressed in the external communication (p. 51 f.) and is anchored within the strategy process.

This report was created in accordance with the GRI standards: "Core" option. The reporting of sustainability issues has been based since the 2017 financial year on the GRI standards, including the Electric Utilities Sector Supplement. Further information on the GRI Content Index can be found at www.enbw.com/gri-index. Further information on the fulfilment of other sustainability standards is available on our website at www.enbw.com/performance-indicators. Our sustainability reporting also complies with the Communication on Progress requirements for the UN Global Compact and is based to an increasing extent on the UN Sustainable Development Goals (www.enbw.com/green-bond). These two framework standards, as well as the UN 2030 Agenda for Sustainable Development, have been used as the basis for the non-financial declaration.

All data and calculation methods used for this Integrated Annual Report are based on German and international standards for financial and sustainability reporting. The responsible specialist units applied representative methods in each case for the collection of all data and information for the reporting period. The reporting period comprises the 2019 financial year.

We took into account all relevant information up to 4 March 2020. Along with EnBW AG, with its headquarters in Karlsruhe, Germany, the group of consolidated companies of EnBW for financial reporting also includes all of its key subsidiaries. The reporting limits for the non-financial performance indicators correspond to the scope of consolidation for financial reporting, unless otherwise stated. In addition, we have also taken other issues into account in various chapters of this Integrated Annual Report, especially against the background of the legal requirement for a non-financial declaration, in order to provide a holistic representation of the performance of the company. The index for the non-financial declaration of the EnBW Group and EnBW AG is presented on p. 121.

As we were preparing the Integrated Annual Report 2019, our aim was to write the text in a concise and understandable way and thus to make it easy to read and more personal. It is for this reason that we have generally used the term "we" and only sporadically the name "EnBW" when we are reporting on our company. The EnBW Group is meant in both cases. For statements about EnBW Energie Baden-Württemberg AG, we have explicitly used either the full name or the short form EnBW AG.

Independent auditing and evaluation

At the Annual General Meeting of EnBW Energie Baden-Württemberg AG on 8 May 2019, Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft was elected as the new auditor and Group auditor. The condensed financial statements for the 2019 financial year that form part of the Integrated Annual Report do not include the notes to the consolidated financial statements or the (Group) declaration of corporate management 2019 which includes the corporate governance report 2019. The full set of consolidated financial statements – including the notes to the consolidated financial statements – and the management report for the company and the Group are included in the extended version of the Integrated Annual Report 2019 and were all audited by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft for the 2019 financial year. As in the previous year, a complete audit of the non-financial declaration was carried out in accordance with an extension of the auditing mandate made by the Supervisory Board. Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft arrived at the overall conclusion that the entire audit did not lead to any reservations and issued an unqualified audit opinion. The high level of integration in the whole reporting process is underlined by this audit of the complete Integrated Annual Report with reasonable assurance. The full set of consolidated financial statements and the combined management report for the company and the Group for the 2019 financial year, as well as the unqualified audit opinion issued by the auditor, are accessible to the public on the website of EnBW Energie Baden-Württemberg AG at www.enbw.com/report2019-downloads.

Combined management report

of the EnBW Group and EnBW AG

Fundamentals of the Group

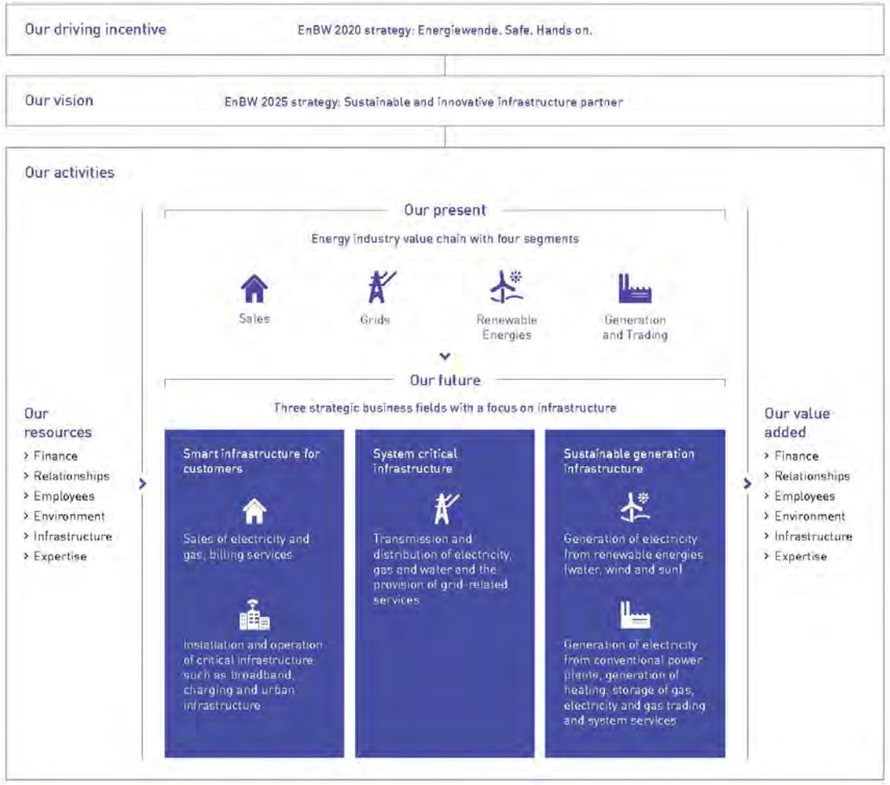
Business report

Fundamentals of the Group

Business model

Business principles

Business model



As an integrated energy company, EnBW is active in the four segments Sales, Grids, Renewable Energies and Generation and Trading and is transforming into a sustainable and innovative infrastructure partner. We draw on a variety of resources – from finance through to expertise – for our corporate activities. As a result of the efficient application of these resources, we create value for ourselves and our stakeholders. In response to the Energiewende in Germany, we developed our **EnBW 2020 strategy** in 2013 with the guiding principle "Energiewende. Save. Hands on." The main focus of this strategy was the transformation of the business portfolio. The aim was to compensate for the fall in earnings in the Generation and Trading segment with growth in the three other segments: Sales, Grids and Renewable Energies. The resolute implementation of the EnBW 2020 strategy is now on the home straight and has significantly strengthened the future viability of the company.

In view of the permanent change to the framework conditions in the energy industry, we will continue to push forward the strategic development of EnBW and its business portfolio. The new planning horizon is 2025 and our vision is to become a sustainable and innovative infrastructure partner for our customers and other stakeholders. In the **EnBW 2025 strategy**, the focus will be increasingly placed on the aspect of infrastructure within our existing business fields. In addition, we want to exploit new opportunities for growth outside of the energy sector. Our transformed business portfolio will be combined within three strategic business fields from 2021: The Sales segment and the new infrastructure businesses – also outside of the energy sector – will become the new strategic business field "Smart infrastructure for customers", while the Grids segment will become the business field "System critical infrastructure". Finally, the strategic business field "Sustainable generation infrastructure" will be formed from the existing "Renewable Energies" and "Generation and Trading" segments. The aim is to develop a balanced business portfolio that has diverse potential for growth, a high proportion of stable, regulated business and an attractive risk-return profile. You can find more about the further development of the EnBW strategy in the chapter "Strategy, goals and performance management system" from p. 41 ff.

An important component of the further development of our business portfolio is **digitalisation,** which is having a greater and greater influence on the way we think and act in our company. We are pushing forward numerous digitalisation initiatives and are focussing here on three main areas: products and processes, technologies, and people and organisation. In 2019, we focussed mainly on products and processes and, in particular, on the development of new, digital approaches for the existing business and new, digital business models.

The year 2019 was characterised by political and social debate on **climate change.** In the Green Deal, the EU wants to introduce comprehensive measures and legal obligations for achieving climate neutrality by 2050. The German federal government also announced in 2019 its aim to become climate neutral by the middle of the century. The Climate Action Plan 2050 that was passed by the German government in October 2019 represented a step in this direction with corresponding intermediate and sector targets. In this context, we have closely examined the significance of sustainability and climate protection themes for our business model and want to support international and national targets for a climate neutral economy in the development of our future measures and goals.

Assessment of the robustness of our business model in terms of climate protection

We have been analysing the robustness of our business model for many years – with an increasing focus on the recommendations issued by the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139) in the last few years. We take account of the special requirements of the Energiewende and its effect on the expansion of renewable energies, supply reliability, electricity consumption, grid stability and the supply of heating in our strategic considerations. In particular, we examine the **climate protection requirements and their impact on the business model**. Accordingly, evaluating the different ways the Energiewende could possibly develop, including the opportunities and risks for our business over the coming years, will be a main focus of our market analyses (p. 104).

The **future development of the European electricity and gas markets** plays a major role here. We draw up consistent future scenarios based on all of the different aspects of the Energiewende mentioned above. Major drivers of these scenarios are how much economic growth there will be in the long term and the political and corporate ambitions for protecting the climate in the energy markets. The various risks associated with the transition to a low-carbon economy are reflected within the scenarios. Relevant parameters include estimates on the development of demand, changes to the power plant portfolio, the development of the transmission grids, and prices and price structures for fuel – as well as other relevant market trends such as in the areas of renewable energies and electromobility. On this basis, possible future paths for the long-term development of, amongst other things, the wholesale market prices for electricity and gas as well as CO_2 prices are derived for the scenarios with simulated calculations using computer models. The simulations also take into account physical risks such as uncertainties about meteorological influences on the electricity market in the future due to the availability of wind and sunlight.

Various parameters and assumptions are used to assess the robustness of the business model with respect to climate protection. These include international climate protection targets, especially limiting the rise in temperature to a level acceptable for the global ecosystem, as well as targets for complying with maximum greenhouse gas concentrations (Glossary, from p. 139), such as the IEA 450 ppm (parts per million) scenario. The targets have been defined based on science but can be translated into global carbon budgets for acceptable levels of CO_2 emissions and can thus be used to define a framework for the future size of the markets for fossil fuels. These **scenarios** not only provide information on the market prices for electricity and gas but also enable us to assess the robustness of our strategic planning, for example, with respect to the size of relevant markets for renewable energies or the infrastructures for electromobility. The scenarios and the assumptions on which they are based are updated at regular intervals, whereby the debate about ambitious climate protection targets plays a decisive role.

Value added

Value added for EnBW and its stakeholders

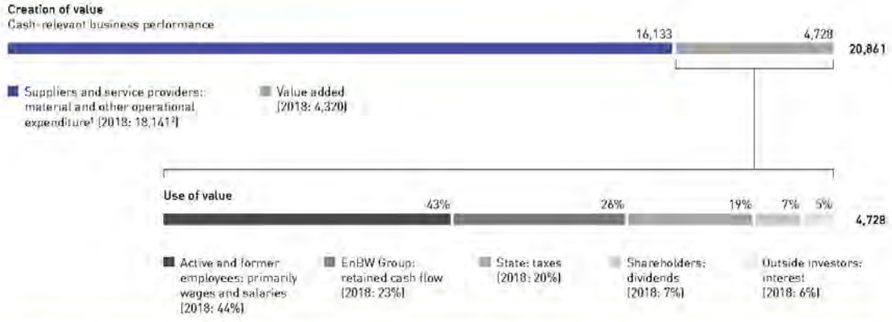
The aim of our corporate activities is to add value in the short, medium and long term. Value added reflects corporate success, as well as competitiveness and future viability, and does not only depend on the company itself but also on the business environment, relationships with stakeholders (p. 51 ff.) and the application of a variety of different resources. As a result of the efficient use of these resources within the scope of our activities, we create value for ourselves and our stakeholders. We associate the concept of sustainable economic development with our aspiration to conduct all of our business activities in a responsible way. This is closely associated with our reputation, that is, the public opinion our stakeholder groups hold about EnBW (p. 31). Information on the interdependencies between the key performance indicators can be found on p. 46 f.

Value added statement

The value added statement indicates the degree to which we contribute to the continuing economic development of the company and our stakeholders using our financial resources. Further information on the dialogue with our stakeholders is summarised in the chapter "In dialogue with our stakeholders" (p. 51 ff.).

We define value added as our cash-relevant business performance in the past financial year minus cash-relevant expenses. The value added is derived from the cash flow statement and corrected based on the use of funds. In the reporting year, we generated value added of 22.7% (previous year restated: 19.2%). As well as being used in the form of wages, salaries and pension payments for active and former employees, a further share is dedicated to payments to the state in the form of income taxes and electricity and energy taxes. After consideration of all stakeholder groups, the retained cash flow is available to the company for future investments without the need to raise additional debt (p. 77).

Value added of the EnBW Group
in € million



1 Includes interest and dividends received, as well as the dedicated financial assets contribution.
2 The figure for the previous year has been restated.

Value added for EnBW and its stakeholders

Resources

Finance
A constantly solid financial structure (equity, debt, positive cash flow levels) for financing our business activities

Relationships
Our customers are the central focus of our philosophy and actions. We actively promote dialogue with our stakeholders and thus build trust and social acceptance.

Employees
The expertise, experience and diversity of our employees contribute to the success of the company, supported by an effective and efficient HR policy.

Environment
Using the natural resources wind, water, sun, biomass and geothermal energy to generate energy

Infrastructure
We are one of the most important energy companies in Germany and Europe thanks to our power plants, electricity and gas grids and gas storage systems.

Expertise
We develop models for new future business fields through our research and innovation activities.

As a result of the efficient use of our resources within the scope of our activities in the 2019 financial year, we create value for ourselves and our stakeholders.

Value added

For EnBW	For our stakeholders
› TOP Securing profitability › TOP High level of financial discipline › TOP Increasing Group value	› Appropriate dividends for our shareholders › Paying interest punctually to our third-party lenders › Wages, salaries and pensions for active and former employees › Tax payments to the state
› TOP Increasing share of result from "Customer proximity"/Sales › TOP Increasing customer satisfaction: "Customer proximity" › TOP Improving reputation › Customer loyalty: strengthen trust in EnBW as a partner and supplier	› TOP Increasing customer satisfaction: "Customer proximity" › TOP Maintaining supply reliability (SAIDI) › Engaging in social issues through activities for our end customers, business partners, local authorities and their citizens
› TOP Increasing employee commitment (ECI) › TOP Improving occupational safety (LTIF) › Always having the right employees with the right skills in the right place	› TOP Measuring employee identification with the company based on the Employee Commitment Index (ECI) › Engagement in the area of diversity › Offering trainee and degree places › Multi-stage career integration programme for refugees and migrants
› TOP Expanding renewable energies (RE) › TOP Increasing Group value › TOP Reducing CO_2 intensity › Improving the carbon footprint › Safe dismantling of nuclear power plants	› TOP Expanding and integrating RE for customers and society › TOP Reducing CO_2 intensity › Energy-efficient products for our customers › Responsible handling of resources › Sustainable and responsible procurement
› TOP Expanding renewable energies (RE) › TOP Increasing Group value › TOP Reducing CO_2 intensity › Driving the Energiewende › Opening up new business fields	› TOP SAIDI: Supply reliability for our customers (maintained by investments in upgrading grids and expanding transmission grids through our grid subsidiaries) › TOP Reducing CO_2 intensity › TOP Investing in the expansion of RE for customers and society › Contracting third-party companies and suppliers
› TOP Securing profitability and increasing share of result from "Customer proximity"/Sales by identifying new sources of revenue › Early identification of medium to long-term market opportunities and trends	› New smart products for the benefit of our customers › EnBW as a provider of venture capital for the development of the portfolio

Overview of the segments, page 36 f. | In dialogue with our stakeholders, page 51 ff. | Research, development and innovation, page 56 ff. | The EnBW Group, page 68 ff.

Our operating segments

Overview of the segments

Sales

Tasks

Sale of electricity, gas, energy industry services and energy solutions; energy supply and energy-saving contracting; cooperations with local authorities; collaboration with municipal utilities; telecommunications

Significant events in 2019

- Strengthening of the telecommunications business with the acquisition of the broadband company Plusnet
- EnBW customers switch over to the new sales and billing system EnPower
- Further partnerships with trading partners and filling station operators for the expansion of the charging infrastructure for electromobility
- Conclusion of the funded project SAFE to establish a core charging and quick-charging network in Baden-Württemberg with EnBW as the head of the consortium
- As the largest operator of quick-charging stations in Germany, EnBW places its first quick-charging park into operation at the junction of the A7 and A8 motorways
- Introduction of a transparent and uniform kWh charging tariff at more than 30,000 charging points in Germany, Austria and Switzerland

Sales in 2019

73.6 billion kWh gas (B2C/B2B)

35.3 billion kWh electricity (B2C/B2B)

Number of B2C and B2B customers 2019

Around 5.5 million

Key figures in 2019

4,394 employees (as of 31/12/2019)	€294.3 million adjusted EBITDA in 2019
€389.4 million investment in 2019	12.1% share of adjusted EBITDA in 2019

Development of adjusted EBITDA (in € billion)

Grids

Tasks

Transmission and distribution of electricity and gas as well as expansion of HVDC connections; provision of grid-related services; water supply; guaranteeing the security of supply and system stability

Significant events in 2019

- Start of the preliminary work for the ULTRANET converter station in Philippsburg
- Further preparations for SuedLink as part of the approval process
- "EnBW connects" participation model offers local authorities in Baden-Württemberg the opportunity to acquire a share of Netze BW for the first time
- Invitation to tender for special technical equipment for grids by TransnetBW
- Completion of the first section of the European gas pipeline EUGAL
- End of the "E-Mobility Avenue" project from Netze BW to examine charging behaviour and the effects on the electricity grid; start of two follow-up projects "E-Mobility-Carré" and "E-Mobility-Chaussee"

Grid lengths in 2019

144,000 km Electricity transmission and distribution grid

25,000 km Gas transmission and distribution grid

Transmission volumes in 2019

62.4 billion kWh electricity	34.2 billion kWh gas

Key figures in 2019

9,254 employees (as of 31/12/2019)	€1,311.2 million adjusted EBITDA in 2019
€1,230.9 million investment in 2019	53.9% share of adjusted EBITDA in 2019

Development of adjusted EBITDA (in € billion)

Renewable Energies

Tasks

Project development and management, construction and operation of renewable energy power plants

Significant events in 2019

- Completion and commissioning of the offshore wind farm EnBW Hohe See with an output of 497 MW
- Completion of the offshore wind farm EnBW Albatros with an output of 112 MW; commissioning in January 2020
- Acquisition of the French project developer and operator of wind farms and solar parks Valeco
- Investment decision for the Weesow-Willmersdorf solar park with an output of more than 180 MW and without EEG funding
- Opening of a representative office in Taiwan for developing offshore wind farm projects as part of selective internationalisation
- Opening of two offices in Jersey City and Boston in the USA to participate in the expansion of offshore wind power on the East Coast of the USA

Generation portfolio in 2019[1]

8,858 GWh generation	2,615 MW installed output

Key figures in 2019

1,384 employees (as of 31/12/2019)	€482.8 million adjusted EBITDA in 2019
€1,552.6 million investment in 2019	19.8% share of adjusted EBITDA in 2019

Development of adjusted EBITDA (in € billion)

Generation and Trading

Tasks

Advisory services, construction, operation and dismantling of thermal power plants; storage of gas; trading of electricity and gas, provision of system services; operation of reserve power plants; gas midstream business, district heating; waste management/environmental services; direct distribution of renewable energy power plants

Significant events in 2019

- Final decommissioning of Block 2 of the Philippsburg nuclear power plant on 31 December 2019
- Approval for the dismantling of Block 2 of the Philippsburg nuclear power plant
- Extension of the inspection of Block II of the Neckarwestheim nuclear power plant for maintenance work
- Inauguration of the dismantling infrastructure at the site in Philippsburg
- EnBW has its bid for the construction of a gas turbine power plant in Marbach am Neckar as special technical equipment for grids accepted
- Official inauguration of the combined gas heat and power plant in Stuttgart-Gaisburg
- Conclusion of a gas procurement contract with Gazprom
- Conclusion of an LNG procurement contract with Novatek

Generation portfolio in 2019[1]

38,788 GWh generation	11,172 MW installed output

Key figures in 2019

5,499 employees (as of 31/12/2019)	€383.8 million adjusted EBITDA in 2019
€98.3 million investment in 2019	15.8% share of adjusted EBITDA in 2019

Development of adjusted EBITDA (in € billion)

1 The sums stated for the generation and installed output in the Renewable Energies and Generation and Trading segments are not identical to the totals for the EnBW Group. Several power plants are allocated to the Sales segment. The total generation of the EnBW Group is 47,807 GWh, of which 9,988 GWh or 20.9% is generated from renewable energy sources. The total installed output of the EnBW Group is 13,949 MW, of which 4,398 MW or 31.6% is from renewable energy power plants. The totals for generation and installed output for the Group are illustrated in detail on p. 88.

Sales segment

The Sales segment encompasses sales of electricity and gas, as well as the provision of energy industry services such as billing services, energy supply, energy saving contracting (Glossary, from p. 139) and new energy solutions. In this area, we exploit our broad energy industry and process-based expertise, as well as our existing relationships with our customers. Against the background of advancing digitalisation, we are optimising, amongst other things, our customer processes and expanding our digital range of products (p. 81 f.). The expansion of the quick-charging infrastructure for electromobility (Glossary, from p. 139) and our activities in the telecommunications business are part of our strategy to develop our company into a provider of smart and sustainable infrastructure.

Grids segment

The Grids segment encompasses the transmission and distribution of electricity and gas, the provision of grid-related services and the supply of water by our grid subsidiaries. Value added in the Grids segment is based on the existing infrastructure and process know-how. Furthermore, value added is anchored in the numerous close relationships with local authorities and citizens. The grid business will be expanded further in the course of the Energiewende and will thus contribute to supply reliability. At the level of the transmission grids, this includes the construction of the two north-south connections SuedLink and ULTRANET by our subsidiary TransnetBW and its partners. Partnerships will also play a more important role in the distribution grid in future as our grid companies efficiently manage our customers' grid installations and facilities and prepare them to meet the new requirements.

Renewable Energies segment

Activities in the area of power generation from renewable energies are combined under the Renewable Energies segment. We are expanding renewable energies significantly, above all in the areas of onshore and offshore wind energy as well as photovoltaics and biogas. The principle of partnership plays a central role in this context and we offer potential investors such as local authorities and private citizens, whom we attract with the aid of targeted models, the chance to participate in renewable energy projects. The value we add in this segment encompasses project development, construction and efficient operation, as well as the repowering (Glossary, from p. 139) of the plants in the future.

Generation and Trading segment

The Generation and Trading segment encompasses electricity generation, the storage of gas, the trading of gas and electricity, the gas midstream business, the provision of system services (Glossary, from p. 139) for the operators of transmission grids, the operation of reserve power plants, district heating, environmental services and the dismantling of power plants. This business is primarily based on the generation of electricity and heat from our coal, gas, pumped storage and nuclear power plants and our operational and optimisation expertise. Electricity generation from fossil fuel power plants remains under pressure. The power plants operating on the market, as well as those power plants transferred to the grid reserve, make a significant contribution here to the security of supply in Germany. We support our customers in the integration of their power plants into the market using our services and expertise, such as in the area of direct distribution.

Group structure and business radius

EnBW is organised according to the model of an integrated company. EnBW AG is managed through business units and functional units. Core operating activities along the entire energy industry value chain are concentrated in the business units. The functional units carry out Group-wide support and governance tasks. The EnBW Group consists of EnBW AG as the parent company and 192 fully consolidated companies, 22 companies accounted for using the equity method and 3 joint operations. Further information on the organisational structure can be found in the chapter "Corporate governance" under "Management and supervision" on p. 48 f.

Baden-Württemberg

Our roots lie in Baden-Württemberg, where we are positioned as a market leader. We rely here on EnBW AG, Netze BW and a series of other important subsidiaries.

Germany, Europe and developing markets

We also operate throughout the rest of Germany and abroad. The acquisition of the French project developer and operator of wind farms and solar parks Valeco in June 2019 was another step in continuing our strategy of **selective internationalisation** in the area of renewable energies. We are also represented by our subsidiaries Connected Wind Services in Denmark and EnBW Sverige in Sweden. In Turkey, we are active in the renewable energies sector with our Turkish partner Borusan. Our first activities in Taiwan and the USA round off our strategy for selective internationalisation.

The acquisition of the telecommunications company Plusnet based in Cologne in June 2019 enabled us to further expand our portfolio in the **broadband business** across Germany (Glossary, from p. 139). Our subsidiary NetCom BW will continue to have its main focus in this business in Baden-Württemberg.

Our **most important participating interests** in relation to the value added chain and their contribution to the result of the EnBW Group include the following groups of companies:

Energiedienst (ED), based in Laufenberg, Switzerland, has around 900 employees and is an ecologically oriented German-Swiss listed company with various subsidiaries that is active in South Baden and Switzerland. ED exclusively generates green electricity primarily using hydropower. Alongside the supply of electricity, this group of companies offers its customers smart, networked products and services, including photovoltaic plants, heat pumps, electricity storage systems, electromobility and e-car sharing.

Pražská energetika (PRE), based in Prague, Czech Republic, has almost 1,600 employees and its core business activities include the sale of electricity and gas, the distribution of electricity in Prague, the generation of electricity from renewable energies and the provision of energy services. PRE is the third largest electricity supplier in the Czech Republic and the operator of a reliable distribution grid. As part of its activities, PRE promotes the use of modern technological solutions and advises on the implementation of innovative technologies and achieving energy savings.

Stadtwerke Düsseldorf (SWD) is one of the largest municipal energy supply companies in Germany. With around 3,200 employees, SWD and the companies in which it holds a majority shareholding supply customers in Düsseldorf and the surrounding region with electricity, natural gas, district heating and drinking water, as well as providing waste disposal and street cleaning services in the metropolitan area of Düsseldorf. In addition, the company's focus is placed on the needs-based development of networked urban infrastructures in the areas of energy, mobility and property.

VNG is based in Leipzig and has around 1,200 employees. It is a horizontally and vertically integrated corporate group with more than 20 companies in six countries and a broad portfolio of services in the gas and infrastructure sectors. Along the gas value added chain, VNG concentrates on its business areas of Gas Trading & Sales, Gas Transport and Gas Storage. Using this core expertise as a basis, VNG is increasingly placing its focus on new business fields. These include, amongst others, biogas, digital infrastructure and district solutions (Glossary, from p. 139). ONTRAS Gastransport operates and markets the second largest German gas transmission grid as an independent transmission system operator.

Customers and sales brands

We supply **around 5.5 million customers** with energy and provide them with energy solutions and energy industry services. We are one of the leading providers of energy and environmental services in Germany. Another focus is the development of our cooperation with municipal utilities and local authorities. The supply of district heating and drinking water is also part of the range of services we offer.

EnBW and its subsidiaries differentiate between two customer groups: The **B2C** customer group includes retail customers, small commercial enterprises, the housing industry and agriculture. The **B2B** customer group encompasses major commercial enterprises and industrial customers, as well as redistributors, municipal utilities, local authorities and public entities.

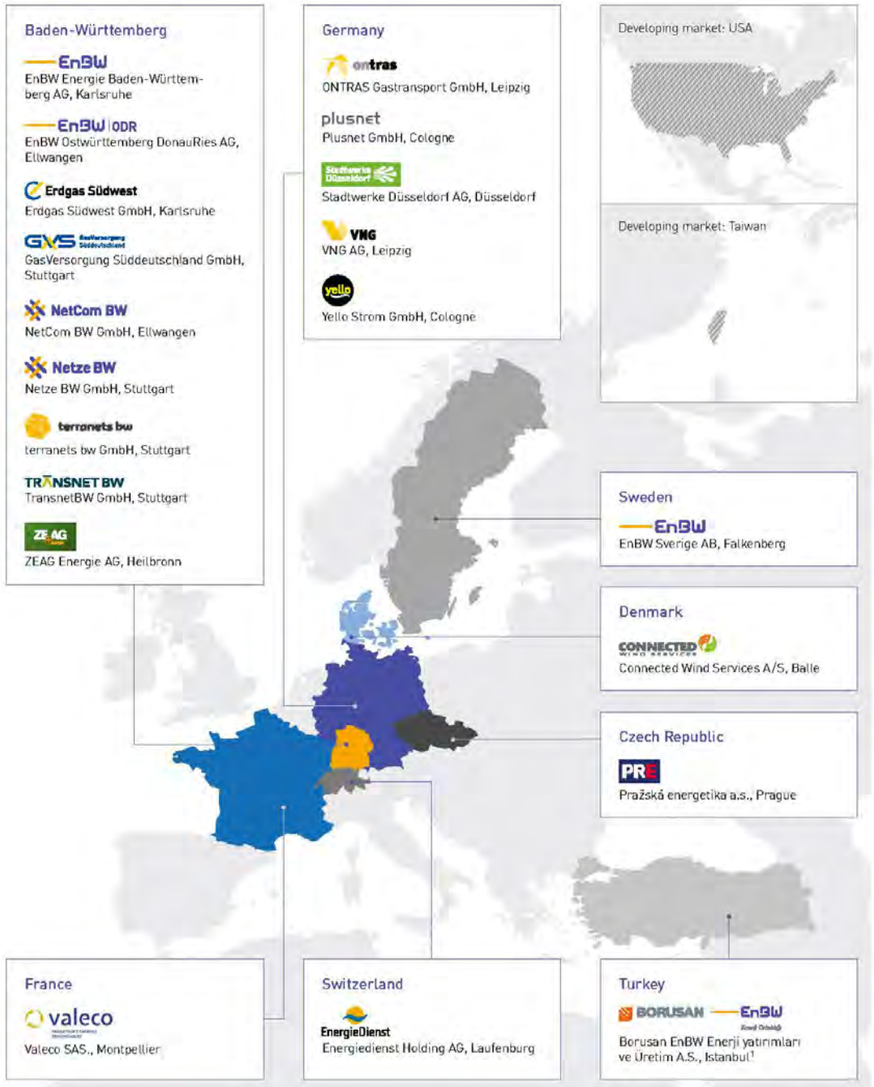
With our sales brands, we are close to our customers and consistently oriented to their needs. As an active partner for the energy system of the future, we sell electricity, gas, district heating, energy industry services, energy solutions and drinking water in the B2C sector under the **EnBW brand** (www.enbw.com). These products and services focus on Baden-Württemberg. We primarily sell electricity and gas, as well as solutions and digital services related to energy, to retail and commercial customers throughout Germany through the **Yello brand** (www.yello.de).

In addition, some of our subsidiaries are active in the B2B sector under the **GVS brand** and in the B2C and B2B sectors under the **Erdgas Südwest, ODR** and **ZEAG brands.**

Under the **NaturEnergie brand** (www.naturenergie.de), ED sells green electricity across Germany and gas to retail customers in South Baden. In Switzerland, the ED Group provides electricity to business customers. PRE sells electricity, gas, energy services and mobile communication services to retail and commercial customers in Prague and the surrounding region under the **PRE brand** (www.pre.cz). PRE also supplies electricity, gas and energy services to industrial customers across the Czech Republic under the PRE brand. Electricity and gas are sold in the Czech Republic under the **Yello brand** (www.yello.cz), primarily via online channels to households and commercial customers. SWD supplies retail and commercial customers in the B2C sector, as well as customers in the agricultural sector, with electricity, gas, heating and drinking water under the **Stadtwerke Düsseldorf brand** (www.swd-ag.de). In the B2B sector, the range of services is directed at business and industrial customers and marketed across Germany, with a focus on North Rhine-Westphalia. The company goldgas, a subsidiary of VNG, sells gas and electricity – especially to private households, commercial customers and property management companies in Germany – under the **goldgas brand** (www.goldgas.de).

Selected companies

Selected EnBW companies in Baden-Württemberg, Germany, Europe and developing markets



1 Not fully consolidated, accounted for using the equity method

The full list of shareholdings can be found in the notes to the consolidated financial statements under [37] "Additional disclosures". The full set of consolidated financial statements is published at www.enbw.com/report2019-downloads. Further information: www.enbw.com/shareholdings

Strategy, goals and performance management system

Strategy

Business environment

The energy sector is undergoing a period of profound change. This process of change is dependent on numerous factors and often does not progress linearly, thus making it difficult to predict. An important element of the Energiewende in Germany is the phasing out of nuclear electricity generation by 2022. The goal of decarbonising the economy is setting the political and regulatory agenda. The German government wants to end coal-fired power generation in Germany by 2038 at the latest. Renewable energies and smart grids will be the focus of future decentralised energy systems. Beyond the energy industry, the willingness in society to try and prevent the emission of greenhouse gases (Glossary, from p. 139) is growing in all aspects of life. To achieve this, cross-sector concepts (Glossary, from p. 139) are needed, such as the linking of energy and infrastructure themes, which are accelerated by digitalisation and new technologies. New value added chains and modified customer behaviour are creating room for innovative business models and new players on the market. The onus is thus on energy supply companies to quickly and flexibly develop a future-oriented business portfolio for their companies.

EnBW 2020 strategy largely implemented

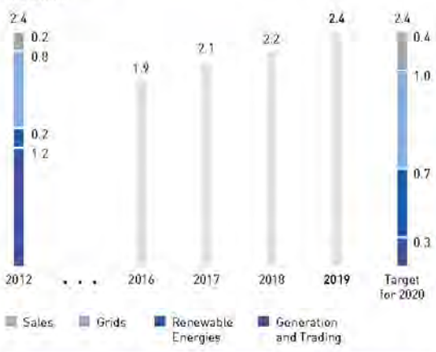
The EnBW 2020 strategy is guided by the principle "Energiewende. Safe. Hands on." It describes our positioning and how we differentiate ourselves from our competitors. Sustainability is an integral component of our Group strategy so that we can guarantee the creation of economic, ecological and social value added for our stakeholders. We associate the concept of sustainable economic development with our aspiration to conduct our business activities in a responsible way (p. 52).

We aim to more than double the share of our generation capacity accounted for by renewable energies from 19% (based on the reference year of 2012) to over 40% in 2020. We have increased the capacities of our onshore wind farms significantly in Germany and selected foreign markets, while the same is true for the growth field of offshore wind energy. By investing extensively in grid expansion, we are making a substantial contribution to the infrastructure required by the energy system and thus to the security of supply. The overall share of adjusted EBITDA accounted for by the regulated grid business and renewable energies has increased from around 40% (reference year of 2012) to more than 70% in 2019 and has thus already reached the target value for 2020. This will improve the risk-return profile of our company. Innovative products and services will become another important pillar of the company's business. By generating an adjusted EBITDA of €2.4 billion in 2019, we were already able to achieve our earnings target for 2020 early.

To implement our strategy, we planned total investment of €14.1 billion (reference year of 2012) by 2020. In order to obtain the financial headroom required for such extensive investments, we have significantly extended our divestiture programme – involving divestitures, cash inflow from participation models, the disposal of assets and subsidies – through our EnBW 2020 strategy to around €5.1 billion (based on the reference year of 2012). We realised investments of €14.8 billion and divestitures of €5.1 billion in the period up to and including 2019. The overfulfilment of our investment target was primarily due to the accelerated growth investment used for the acquisitions of Valeco and Plusnet.

Transformation of the portfolio and development of adjusted EBITDA up to 2020

in € billion



We developed our EnBW 2020 strategy back in 2013 in the wake of the profound changes impacting the energy industry as part of the Energiewende. We have rigorously and sustainably implemented this strategy since then. In view of the upcoming planning horizon, the following is now clear: The improvements in efficiency, the transformation of the business portfolio and the growth initiatives designed to place the company on new foundations ready for the future have largely been implemented or are on the home straight. We will now make the switch from "realignment and repositioning" to "growth" in the EnBW 2025 strategy.

The EnBW 2025 strategy: The path to becoming a sustainable and innovative infrastructure partner

Ongoing strategic development

Holistic focus on stakeholders

Multi-dimensional goal system

Finance · Strategy · Customers and society · Employees · Environment

Integrated corporate strategy

EnBW 2020 strategy "Energiewende/Safe. Hands on."	>	EnBW 2025 strategy "Making and shaping the infrastructure world of tomorrow."
Realignment and repositioning	>	Growth
Energy supply company	>	Infrastructure provider
Four segments › Sales › Grids › Renewable Energies › Generation and Trading	>	Three strategic business fields › Smart infrastructure for customers › System critical infrastructure › Sustainable generation infrastructure

After the first phase of the Energiewende was characterised above all by political and regulatory measures, the changes in the energy sector will now be increasingly driven by market developments and shaped by cost reductions and technical advances. Under the motto "Making and shaping the infrastructure world of tomorrow", the EnBW 2025 strategy will increasingly place the company's focus onto the infrastructure aspects of existing business fields – for example, networking small decentralised power plants to form virtual power plants (Glossary, from p. 139) or the networking of the energy sector (Glossary, from p. 139) with neighbouring sectors such as transport or communications infrastructure. Furthermore, we will use our core expertise to exploit new growth opportunities above and beyond the energy sector. Our core expertise – what we do well and do better than many others – lies in the safe and reliable construction, operation and management of critical infrastructure in the energy sector, such as efficient, low-carbon power plants or transmission and distribution grids that meet the requirements of an energy industry based on renewable energies. This distinctive expertise can be transferred to other infrastructure sectors. Our dedication and commitment have already enabled us to make significant progress in, for example, the broadband business (Glossary, from p. 139), the expansion of quick-charging infrastructure (Glossary, from p. 139) as the basis for electromobility and in the area of urban infrastructure.

Urban infrastructure, as we understand it, involves the smart networking of energy supply, heating, telecommunications, mobility, traffic management and parking space management, as well as security in the public sphere. We are developing our company into a modern and flexible organisation. Performance, creativity, freedom for independent action, quick decisions made as closely oriented to the business as possible and a consistent focus on the customer and their needs will define the requirements for independent action in the future.

We are transforming ourselves into a sustainable and innovative infrastructure partner for our customers and other stakeholders. Following the successful implementation of the EnBW 2020 strategy, we will combine our business portfolio from 2021 – in accordance with the rationale behind the EnBW 2025 strategy – within **three strategic business fields:**

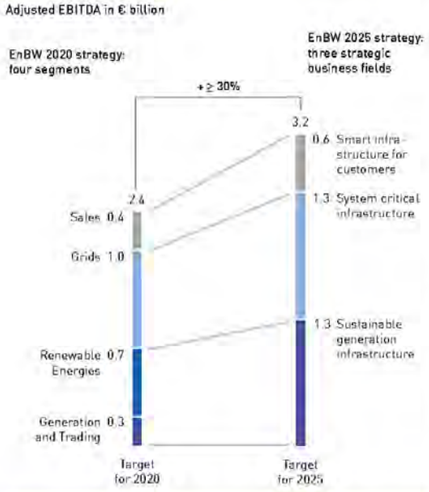
› In the strategic business field **Smart infrastructure for customers,** we will develop new and digital business models, launch them onto the market and scale them up – even beyond the traditional energy industry value chain. The main focus will be placed here on the expansion of the quick-charging infrastructure, activities in the areas of telecommunications and broadband and other fields such as urban infrastructure.

› In the strategic business field **System critical infrastructure,** our grid subsidiaries for electricity and gas will further expand the transmission grids into an important cornerstone of our earnings alongside the distribution grids. In addition, we will upgrade the electricity distribution grids so that they are ready to meet the requirements of the future and ensure they are optimally prepared for the demands that will be placed on them by electromobility. We want to significantly develop and expand the business involving grid-related services – the operation of grids for third parties, payment and billing services and charging networks for electromobility – especially in partnership with local authorities and public utilities.

› In the strategic business field **Sustainable generation infrastructure,** we will be dominant in renewable energies – with offshore and onshore wind power as our spearhead. We will also continue with our strategy of selective internationalisation and the expansion of the portfolio of major photovoltaic projects, enabling us to specifically target the expansion of low-carbon generation. In addition, we will build on our strong position in the gas business, especially in the area of green and synthetic gases. In contrast, we will gradually withdraw from coal-based conventional generation while preserving value at the same time. The last nuclear power plants operated by EnBW will be decommissioned in 2022.

Realignment and growth

Adjusted EBITDA in € billion



Following the successful implementation of the EnBW 2020 strategy, there will be a smooth transition between the strategy periods. We already strengthened our business activities in the area of renewable energies in 2019 with the acquisition of the French project developer and operator of wind farms and solar parks Valeco. We also took a significant step in building a strong position for ourselves on the nationwide telecommunications market in Germany in 2019 with the acquisition of Plusnet. Both transactions will contribute to the EnBW 2025 growth strategy.

The central goal of the EnBW 2025 strategy is to increase adjusted EBITDA to €3.2 billion, whereby all three strategic business fields should make a significant contribution to this increase in earnings.

EnBW is planning to invest around €12 billion in total between 2021 and 2025. The main focus of the investment will be on the expansion of the grids, especially the central SuedLink and ULTRANET projects of our grid subsidiary TransnetBW for the future energy supply in Germany, the expansion of renewable energies, such as the realisation of the EnBW He Dreiht offshore wind farm, and the further development of smart infrastructure for customers, for example, in the areas of broadband, telecommunications and electromobility. In accordance with the EnBW 2025 growth strategy, 80% of our overall investment will be accounted for by growth projects.

This **growth strategy** will be financed by the retained cash flow and, where necessary, through the use of external funds. By using sustainable financing instruments, we are taking account of our transformed business portfolio and have gained access to new groups of investors who place importance on the sustainable use of their investments. We will continue to strive to maintain a balanced financing structure, solid financial profile and thus solid investment-grade ratings (Glossary, from p. 139).

Goals and performance management system

Performance management system

The management of the company comprises financial, strategic and non-financial goals and, as well as the finance and strategy goal dimensions, includes the dimensions customers and society, employees and the environment. The centrepiece of this integrated corporate management is the performance management system (PMS). The most important financial and non-financial Group goals have been broken down into target agreements, insofar as they are considered a sensible performance indicator for the respective area. In the quarterly performance reviews conducted at a Board of Management level, the value drivers for the most important operating performance indicators that contribute to the achievement of targets for the key performance indicators (finance, strategy and environment goal dimensions) are reported. In terms of external communication, the PMS feeds into the integrated reporting of the financial and non-financial performance of the company based on the reporting framework of the International Integrated Reporting Council (IIRC). This Integrated Annual Report 2019 incorporates the financial and non-financial aspects of our business activities. The key performance indicators enable us to measure the degree to which goals are achieved and to manage our company.

Financial and non-financial key performance indicators and targets

Goal dimension	Goal	Key performance indicator	2019	Target for 2020	Target for 2025
Finance	Secure profitability	Adjusted EBITDA in € billion	2.4	2.3–2.5	3.2
	High level of financial discipline	Internal financing capability in %	82.6	≥ 100	–[1]
		Debt repayment potential in %	–	–	>14[1]
	Increasing Group value	ROCE in %	5.2	8.5–11	6.5–8
	The EnBW Group, page 68 ff. | Forecast, page 96 ff. | Report on opportunities and risks, page 100 ff.				
Strategy	Share of result accounted for by "Customer proximity"/ Sales	Share of overall adjusted EBITDA in € billion/in %	0.3/12.1	0.4/15.0	0.6/20.0 (Smart infrastructure for customers[2])
	Share of result accounted for by Grids	Share of overall adjusted EBITDA in € billion/in %	1.3/53.9	1.0/40.0	1.3/40.0 (System critical infrastructure[2])
	Share of result accounted for by Renewable Energies	Share of overall adjusted EBITDA in € billion/in %	0.5/19.8	0.7/30.0	1.3/40.0 (Sustainable generation infrastructure[2])
	Share of result accounted for by Generation and Trading	Share of overall adjusted EBITDA in € billion/in %	0.4/15.8	0.3/15.0	
	The EnBW Group, page 70 f. | Forecast, page 97 | Report on opportunities and risks, page 100 ff.				
Customers and society	Reputation	Reputation Index	53	55	58 to 62
	Customer proximity	EnBW/Yello Customer Satisfaction Index	116/157	>136/>159	125 to 136/ 148 to 159
	Supply reliability	SAIDI (electricity) in min./year	15	< 25	< 20
	The EnBW Group, page 81 ff. | Forecast, page 98 f. | Report on opportunities and risks, page 103				
Employees	Employee commitment	Employee Commitment Index (ECI)[3]	66	65	≥ 66
	Occupational safety	LTIF for companies controlled by the Group[4]	2.1	≤ previous year	2.1
		LTIF overall[5]	3.8	–	3.5
	The EnBW Group, page 83 ff. | Forecast, page 99 | Report on opportunities and risks, page 103				
Environment	Expand renewable energies (RE)	Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	4.4/31.8	5.0/>40	7.5 to 8.0/>50
	Climate protection	CO_2 intensity in g/kWh	419	–15% to –20% (reference year 2015: 609 g/kWh)	–10% to –20% (reference year 2020)
	The EnBW Group, page 87 ff. | Forecast, page 99 | Report on opportunities and risks, page 104				

1 Following the transition to the growth strategy, the key performance indicator internal financing capability will be replaced by the new key performance indicator debt repayment potential from 2021. Therefore, no target value has been defined for the internal financing capability for 2025. To ensure EnBW achieves its ratings target, the target value will be examined annually based on the requirements of the rating agencies.

2 The four segments of Sales, Grids, Renewable Energies and Generation and Trading will become the three strategic business fields of Smart infrastructure for customers, System critical infrastructure and Sustainable generation infrastructure from 2021.

3 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs)).

4 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for companies in the area of waste management as well as external agency workers and contractors).

5 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for external agency workers and contractors).

Definition and target values for the key performance indicators

We safeguard the implementation of our strategy by means of a holistic goal and performance management system. This system reflects the overall performance of the company and strengthens integrated thinking within it. At the same time, it underpins our comprehensive and transparent focus on performance and stakeholders. Our goal system comprises the five dimensions of finance, strategy, customers and society, employees and environment. A number of specific targets have been defined in each goal dimension, whose achievement is continuously measured using key performance indicators. Linked with this goal system and the centrepiece of our corporate management is the performance management system (PMS). Quantitative target values are currently set for the key performance indicators for the 2020 strategy horizon and have now also been set for the first time for 2025. The key performance indicators are the same as those used in the previous year, although two key indicators will be reported for LTIF from 2019.

The financial and strategic key performance indicators within the PMS are the adjusted EBITDA, the shares of the adjusted EBITDA accounted for by the segments, the internal financing capability and ROCE.

- The **adjusted EBITDA** is the earnings before the investment and financial results, income taxes and amortisation and adjusted for non-operating effects. Adjusted EBITDA is a key performance indicator for the finance goal dimension, while the key performance indicators for the strategy goal dimension, which describe the **shares of adjusted EBITDA accounted for by the segments**, are derived directly from it (p. 70 and 97). The operating result in 2020 will return to the average level achieved before the Energiewende. The overall share of earnings accounted for by the regulated grid business and renewable energies is around 70%. In 2025, we aim to achieve an operating result of €3.2 billion.
- The **internal financing capability** is the key performance indicator for the Group's ability to finance its activities internally: It describes the adjusted retained cash flow in relation to the adjusted net (cash) investment (p. 78 and 97 f.). After covering ongoing costs and dividend payments, the adjusted retained cash flow is available to the company for net investment without the need to raise additional debt. Since the 2017 financial year, we have adjusted the retained cash flow to take account of the extraordinary effect of the reimbursement of the nuclear fuel rod tax (Glossary, from p. 139) (adjusted retained cash flow) and since 2019 we have also adjusted the net (cash) investment to take into account the accelerated growth investment used for the acquisitions of Valeco and Plusnet that already contribute to the EnBW 2025 growth strategy. As it will not be possible to exclusively finance this growth phase using funds from our internal financing capability, we will manage our creditworthiness from 2021 using the **debt repayment potential** (retained cash flow in relation to the net debt). The key performance indicator internal financing capability will be retained until 2020.
- **ROCE (return on capital employed)** is the ratio of adjusted EBIT including the adjusted investment result to the average capital employed. It should exceed the capital costs and is used for determining the value added, reflecting the development of the company's value from a financial point of view (p. 79 f. and 98). Due to the sharp fall in interest rates, the cost of capital (WACC) has reduced from 8.7% in 2012 to 5.2% in 2019. We do not expect any changes to the interest rate environment up to 2025.

In addition to the financial key performance indicators, the PMS also includes non-financial key performance indicators.

The customers and society goal dimension comprises the Reputation Index, the Customer Satisfaction Index and the SAIDI (System Average Interruption Duration Index).

- In order to calculate the **Reputation Index**, a total of around 5,000 people – from the stakeholder groups relevant for the EnBW brand of customers, the wider public, industrial companies, opinion leaders and investors – are asked about their impressions of the EnBW brand by an external market research institute. Results are collected for each stakeholder group about the distinctiveness of the brand and the assessment of the competence of and emotional attitude towards the EnBW brand. These are merged together to form a Reputation Index. The individual reputation indices for each stakeholder group are weighted equally to form a consolidated and reported Reputation Index (p. 81 and 98). We aim to continuously improve our reputation.
- The key performance indicator **Customer Satisfaction Index** assesses the average satisfaction of private end consumers of electricity over the year, which is directly linked to customer loyalty. The information is compiled using customer surveys about the two brands EnBW and Yello conducted by an external service provider. The Customer Satisfaction Index allows us to draw conclusions about how well we are meeting the needs and wishes of the surveyed customers with customised solutions and products (p. 81 f. and 98). Climate protection measures will make energy more expensive for customers in the next few years. Despite the new skills, offers and services that EnBW has developed, this will in all likelihood negatively impact the perception of the energy sector. The target value for the Customer Satisfaction Index in 2025 is thus below the level in 2020.
- **SAIDI** serves as the key performance indicator of supply reliability. It expresses the average length of supply interruption in the electricity distribution grid experienced annually by each connected customer. SAIDI includes all unscheduled interruptions to supply that last more than three minutes for the end consumer. The definition and calculation of this performance indicator is based on the guidelines issued by the Network Technology/Network Operation Forum (FNN) of the VDE (German Association for Electrical, Electronic & Information Technologies) (p. 83 and 98). Maintaining the quality of supply to our customers is of central importance to us in the further development of the grids of our grid subsidiaries. The reliability of the supply in the grid areas operated by our grid subsidiaries builds on our comprehensive investment in grids and facilities as well as our system expertise.

The Employee Commitment Index (ECI) and LTIF (Lost Time Injury Frequency) are utilised as performance indicators in the employees goal dimension.

- The **ECI** expresses the degree to which employees identify with EnBW. It is compiled using employee surveys and is based on standardised questions that address the degree to which employees identify with the company, including satisfaction with their employer-employee relationship, attractiveness of the employer, identification with the company, motivational climate, competitiveness and future viability. The ECI is generally compiled every two to three years for all companies with more than 100 employees (excluding the ITOs) (Glossary, from p. 139) as part of a full survey carried out by an external, independent service provider. Representative random sample surveys are completed in the periods between the full surveys – as was also the case in 2019 (p. 83 f. and 99). We want to further strengthen the commitment of our employees to EnBW and their trust in the future viability of the company.
- **LTIF** is calculated on the basis of LTI (Lost Time Injuries) which denotes the number of accidents during working hours which have occurred exclusively because of a work assignment from the company and result in at least one day of absence. LTIF indicates how many LTI occurred per one million working hours performed. The calculation of the LTIF overall generally includes all companies with more than 100 employees. For the calculation of the LTIF for companies controlled by the Group, those companies engaged in the area of waste management are excluded because the number of accidents deviates significantly from that in the core business in the energy industry. External agency workers and contractors are not taken into account in either performance indicator (p. 86 f. and 99). The number of accidents at work and the resulting days of absence should remain consistently stable or fall.

The key performance indicators in the environment goal dimension are the installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE and CO_2 intensity.

- The **installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE** are measures of the expansion of renewable energies and refer to the installed output of the power plants and not to their weather-dependent contribution to electricity generation (p. 87 and 99). We aim to double the share of the generation capacity accounted for by renewable energies by 2020 compared to 2012 (19%) and increase this figure further by 2025.
- The emissions of CO_2 from own generation of electricity for the Group, as well as the volume of electricity generated by the Group without the contribution made by the nuclear power plants, form the basis for the calculation of the key performance indicator **CO_2 intensity** (Glossary, from p. 139). This performance indicator is calculated as the ratio between the emissions and the generated volume of electricity and thus specifically describes the amount of CO_2 released per kilowatt hour. By discounting the electricity generated by nuclear power plants, the performance indicator will not be influenced by the phasing out of nuclear energy in the coming years (p. 88 and 99). We are actively contributing to climate protection by reducing the CO_2 intensity of our own generation of electricity (excluding nuclear power) by 15% to 20% by 2020 compared to the reference year 2015.

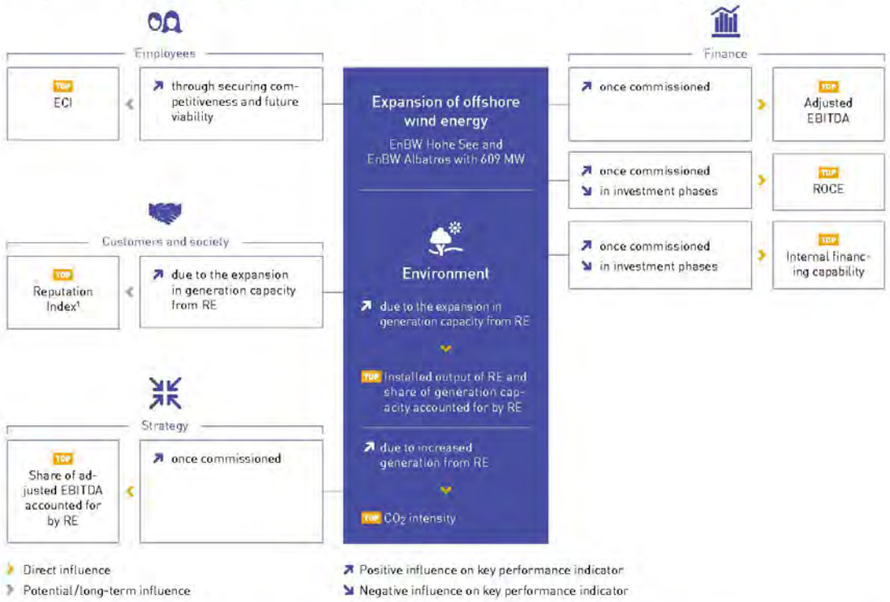
TOP Interdependencies between the goal dimensions, targets and key performance indicators

We are convinced that in order to give a comprehensive portrayal of the company, it is not only necessary to describe the economic, ecological and social context but also to illustrate and provide an analysis of interdependencies in this report. Linking together the various goal dimensions is an important element of integrated reporting. At the same time, this type of reporting encourages a holistic corporate management approach within EnBW. In order to illustrate these interdependencies, the key performance indicators for the goal and performance management system are used. The basic assumption for illustrating interdependencies is that a change in one key performance indicator can also lead, in many cases, to changes in one or more other key performance indicators. Reciprocal relationships thus exist between the key performance indicators – in the most extreme case, all of the key performance indicators can even influence each other.

In order to illustrate the interdependencies in 2019, we have selected two themes: the **expansion of offshore wind energy** using the EnBW Hohe See and EnBW Albatros wind farms as an example, and the **expansion of the telecommunications business** using the acquisition of Plusnet as an example. The commissioning of the offshore wind farms EnBW Hohe See in 2019 and EnBW Albatros in January 2020 have a direct positive effect on the key performance indicators in the environment goal dimension. The acquisition of Plusnet has a direct effect on the key performance indicator "share of adjusted EBITDA accounted for by Sales" in the strategy goal dimension. In addition, we anticipate that there will be a direct or potential influence on other key performance indicators for both examples.

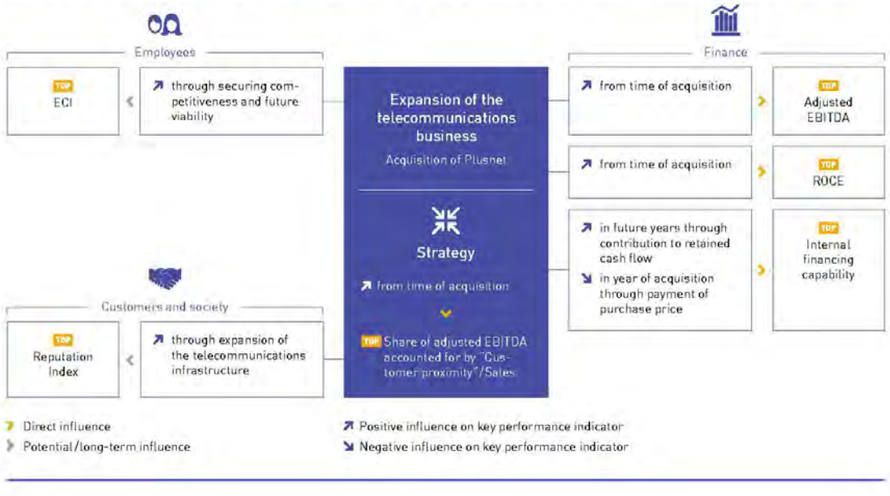
The key performance indicators that are directly influenced are positioned in the centre of the diagram and should essentially be directly measurable. The interdependencies between the financial and strategy key performance indicators are also essentially directly measurable and are represented in the example diagrams by orange arrows. The interdependencies with the other non-financial key performance indicators are difficult to measure and generally tend to be potential or long term in nature. They are represented by grey arrows. In the 2019 financial year, these interdependencies were not measured individually. They are presented based on internal discussions with the relevant specialist areas and those responsible for the performance indicators. The upward pointing arrows show a positive influence on the key performance indicator, while the downward pointing arrows show a negative influence.

Interdependencies between key performance indicators using the expansion of offshore wind energy as an example



1 We also anticipate a potential negative influence on the Reputation Index due to the risk of social opposition with respect to environmental aspects. However, this type of risk is more than compensated for by the overall potential positive influence of the expansion of renewable energies on the Reputation Index.

Interdependencies between key performance indicators using the expansion of the telecommunications business as an example



Corporate governance

Corporate management

Good corporate governance is an essential part of the corporate culture at EnBW. We are convinced that responsible and transparent corporate governance strengthens the trust and confidence that customers, capital providers, employees and the general public place in the company, thereby contributing to its long-term success. The Board of Management and Supervisory Board are comitted to managing and supervising the company above and beyond merely fulfilling statutory requirements, but to do it in accordance with recognised benchmarks for good corporate governance and in harmony with the principles of a social market economy, guaranteeing the continued existence of the company and ensuring a sustainable increase in its added value. Therefore, we also meet all the recommendations of the German Corporate Governance Code (DCGK) in the version from 7 February 2017 (www.enbw.com/corporate-governance).

Conformity with the German Corporate Governance Code at EnBW was monitored by Dr. Bernhard Beck up to 30 June 2019 and by Colette Rückert-Hennen from 1 July 2019 as the members of the Board of Management responsible for corporate governance. Colette Rückert-Hennen reported extensively to the Board of Management and Supervisory Board on all current themes pertaining to corporate governance. Both boards acknowledged her report and addressed the recommendations and suggestions in the Code. They subsequently approved the company's annual declaration of compliance pursuant to section 161 German Stock Corporations Act (AktG) on 4 December 2019. The current declaration of compliance and the declarations from previous years are published at www.enbw.com/declaration-of-compliance. The declaration of compliance is based on the German Corporate Governance Code in the version from 7 February 2017 and not the current version submitted for review and publicaton by the DCGK Commission of the Federal Ministry of Justice and Consumer Protection from 23 January 2020, because this will only come into force after the annual declaration was made. The remuneration report is contained in the management report on p. 110 ff. of this report.

Management and supervision

Board of Management

The Board of Management is jointly responsible for managing Group business. In addition to the role of CEO, the tasks performed by the Board of Management are split into the remits of "finance", "HR, law and compliance, auditing" and "technology". As of 31 December 2019, the Board of Management of EnBW AG consisted of four members. Colette Rückert-Hennen joined the Board of Management as the replacement for Dr. Bernhard Beck on 1 March 2019 and took over responsibility from this point onwards for the areas of personnel, executive management and health management. Since the end of Dr. Bernhard Beck's period in office on 30 June 2019, Colette Rückert-Hennen has also been responsible for the areas of law, auditing, compliance management/data protection, regulatory management and boards/shareholder relations. Thomas Kusterer has been responsible for the area of equity investment management since this point in time.

Allocation of responsibilities at Board of Management level (as of 31/12/2019)

www.enbw.com/board-of-management

Supervisory Board

The Supervisory Board of EnBW AG consists of 20 members in accordance with article 8 (1) of the Articles of Association. In accordance with the German Co-determination Act (MitbestG), an equal number of members represent shareholders and employees. Three employee representatives are nominated by the ver.di trade union. The Supervisory Board appoints the members of the Board of Management and advises them on their management of the company. It discusses business performance, planning and strategy of the company together with the Board of Management at regular intervals and ratifies the annual financial statements. The Supervisory Board is always involved in decisions of fundamental importance to the company. Legal transactions and measures subject to the approval of the Supervisory Board are defined in its rules of procedure. In order for the Supervisory Board to optimally perform its functions, it has formed the following standing committees: a personnel committee, a finance and investment committee, an audit committee, a nomination committee and a mediation committee in accordance with section 27 (3) MitbestG, a digitalisation committee and an ad-hoc committee.

Further information on the Board of Management and Supervisory Board can be found in this report under the section on "Corporate bodies" (p. 131 ff.) as well as in the Declaration of Corporate Management 2019 of the EnBW Group and EnBW AG including the Corporate Governance Report 2019 and in the Report of the Supervisory Board (www.enbw.com/corporate-governance).

Annual General Meeting

Shareholders exercise their rights with regard to company matters at the Annual General Meeting. The Annual General Meeting passes resolutions on the discharge of Board of Management and Supervisory Board members, the appropriation of earnings and selection of the auditor. Resolutions of the Annual General Meeting only require a simple majority of votes in most cases. Each bearer share is equivalent to one vote. Further information on the Annual General Meeting is available at http://hv.enbw.com.

Shares of EnBW AG are listed on the General Standard segment of the Frankfurt Stock Exchange. A stake of 46.75% of the share capital in EnBW AG is owned by each of both the Federal State of Baden-Württemberg – via its wholly owned subsidiary NECKARPRI GmbH and, in turn, via its wholly owned subsidiary NECKARPRI-Beteiligungsgesellschaft mbH – and by Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) via its wholly owned subsidiary OEW Energie-Beteiligungs GmbH.

Overall, the shareholder structure is unchanged as of 31 December 2019 when compared to the previous year.

Shareholders of EnBW

Shares in %[1]	
OEW Energie-Beteiligungs GmbH	46.75
NECKARPRI-Beteiligungsgesellschaft mbH	46.75
Badische Energieaktionärs-Vereinigung	2.45
Gemeindeelektrizitätsverband Schwarzwald-Donau	0.97
Neckar-Elektrizitätsverband	0.63
EnBW Energie Baden-Württemberg AG	2.08
Other shareholders	0.39

1 The figures do not add up to 100% due to rounding differences.

Compliance

Compliance management systems

Natural compliance with the relevant legal regulations and internal company rules forms the basis for our business activities, is part of our corporate culture and is laid out in the code of conduct. The compliance management systems (CMS) and functions of EnBW are individually designed: They are based on company and sector-specific priorities and risks, the size of the company and other factors. They are designed to support each company – and thus the whole Group – in avoiding risks, liability claims and damage to reputation.

Depending on the type of corporate control over a company, the compliance-relevant companies with employees are either directly or indirectly integrated into the compliance management system of EnBW.

The CMS is continuously examined and updated internally as part of the audit or by the compliance organisation itself. It covers the directly controlled companies. The department's activities focus on the prevention, detection and sanctioning of corruption, the prevention of violations against competition and antitrust laws, the prevention of money laundering and data protection – which falls under the area of compliance and data protection at EnBW. In the reporting year, there were 29 companies directly integrated into the CMS from a compliance perspective. New companies are integrated into the CMS using a risk-based approach.

Companies indirectly integrated into the CMS of EnBW have their own CMS. Relevant participating interests held by these companies are also integrated into their CMS. Two companies in the ED Group were integrated into the CMS for Energiedienst (ED), while four subsidiaries have independent control over compliance. Seven companies with employees were integrated into the CMS at Pražská energetika (PRE), three at Stadtwerke Düsseldorf (SWD), two at ZEAG and 19 at the VNG Group.

We want to safeguard our commercial success by combating compliance risks – especially corruption and bribery. Preventative risk assessment methods, advisory services and training concepts have been set up at EnBW, the compliance-relevant companies and the ITOs (Independent Transmission Operator) (Glossary, from p. 139).

Activities this year

Face-to-face training courses were held in relevant areas in 2019. The focus across the Group was placed on **training** the large group of employees with assistant or secretarial functions, as well as EnKK. In addition, face-to-face training courses on antitrust law were held in other sensitive areas of the company. The completion of an e-learning course or participation in face-to-face introductory training courses is obligatory for new EnBW employees. All of the indirectly integrated companies held training courses to increase awareness amongst employees. The companies were able to choose whether to use either **face-to-face or online training courses.**

Number of participants in face-to-face compliance training events[1]

1 At EnBW AG and directly integrated companies.

EnBW holds a **compliance day** every year. The event was held on 27 November 2019 in Karlsruhe and provided the around 110 participants with a varied programme including motivational talks and workshops. In line with the motto of "responsibility", the importance of taking independent action with respect to compliance at a company was emphasised.

The integration of the companies that were newly acquired in the reporting period is currently in progress.

The annual **compliance risk assessments** at EnBW investigate the corruption, antitrust, fraud and data protection risks and form the basis for the work relating to compliance and data protection. In 2019, they were carried out at those companies directly and closely integrated into the CMS. The summary of the material compliance risks is contained in the "Report on opportunities and risks" (p. 103 and 106). Such risks are also systematically identified in the indirectly integrated companies and the ITOs.

The **advisory services** offered by the EnBW compliance department are available to companies directly integrated into the CMS and represent another key element of prevention. They were also highly utilised in 2019. These services include a compliance hotline, which can be contacted in person, by e-mail or telephone. In 2019, the compliance hotline received around 1,250 enquiries relating to the key issues of gifts, donations and sponsoring, as well as to further topics such as conflicts of interest and the auditing of business partners. The advisory services dealing with compliance themes at the indirectly integrated companies have also been used to good effect.

Compliance breaches

EnBW and the directly integrated companies have established reporting channels via which internal, and also external, whistle-blowers can report suspected cases while remaining anonymous. Alongside EnBW, the companies ED, PRE, SWD and TransnetBW have also established a whistle-blower system.

In the reporting year, there were nine breaches at directly integrated companies although none of them were material breaches. There was one compliance breach each at terranets bw and TransnetBW in the reporting year, while one suspected case at VNG proved to be well-founded. There were two compliance breaches at PRE. There was no evidence of any cases of corruption.

The EnBW Group faced neither antitrust law penalty procedures nor third-party antitrust lawsuits in the 2019 financial year. Law enforcement agency investigations of individual employees and former members of corporate bodies relating to the so-called Russian deals and sales tax carousel in CO_2 allowance trading (Glossary, from p. 139) were continued in 2019. It is not possible to say at the present time when these proceedings will end.

Data Protection

The EU General Data Protection Regulation (GDPR) has resulted in greater awareness of data protection issues. The resulting demand for advice was covered by the compliance department. The new e-training course developed in 2018 was made obligatory also in 2019 for all employees with access to the e-training course. Employees in sensitive areas were trained accordingly in face-to-face training courses. In addition, the range of information made available online is being improved continuously. As the data subjects have now been afforded more rights by the GDPR, a large number of requests for information were received in 2019.

In dialogue with our stakeholders

Our stakeholders

Continuous and systematic dialogue with our internal and external stakeholders is an important element for determining key issues as part of our business activities. The most important stakeholder groups include shareholders and the capital market, employees, customers, local authorities and municipal utilities, society and environment, suppliers, business partners, the political community and the media. A fundamental aspect of our dialogue with stakeholders is the identification and prioritisation of stakeholder groups relevant to strategically significant and current issues, particularly with regards to the Energiewende and mobility transition.

This dialogue is conducted using a variety of communication channels ranging from conferences to social media platforms. In direct dialogue with our stakeholders, we listen to their interests and their expectations of EnBW. This information is taken into account in the decision-making process for the strategic positioning of the company and when making business decisions. At the same time, we inform important stakeholders about the company's needs and the prerequisites for providing an efficient, reliable and sustainable supply of energy. As part of this dialogue, it is also important for us to listen to critical opinions such as those expressed at events held by our Energy & Climate Protection Foundation. It is our belief that mutual understanding, social acceptance and trust are increased further through this purposeful exchange of insights and perspectives. In addition, it can also help us to identify central developments and key topics at an early stage.

Materiality analysis

We have continuously expanded our processes over the last few years for identifying material topics and linking them simultaneously with the development of the company's strategy. Material aspects are determined via the framework provided by the International Integrated Reporting Council (IIRC), as well as in accordance with the GRI standards for sustainability reporting issued by the Global Reporting Initiative (GRI). Other current developments flow into the determination of future key issues, such as the work of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139) on climate-related risk reporting.

On the one hand, topics are considered material if they have a significant influence on long-term value added and thus the performance and future viability of our company. Contributions to the strategic orientation as a sustainable and innovative infrastructure partner are of particular importance in this context. On the other hand, aspects reflecting any important economic, environmental and social impacts the organisation may have and that significantly influence the perception of stakeholders are also taken into account.

Material themes are continuously implemented in the functional and business units, as well as in the individual companies of EnBW. In addition, the findings from the materiality analysis flow into, for example, the strategy process and stakeholder management.

The materiality analysis process comprises three steps: the creation of an overview of the themes relevant to strategy and communication, the development of a list of themes relevant from the perspective of sustainability and the derivation of material themes from the reputation analysis. During each step of the process, the themes identified were continuously compared to the key themes that were dealt with by the Supervisory Board in the reporting year. Every step leads to a distinct prioritisation of themes and ultimately to a final list of the top themes that can be allocated to the categories of transformation of the portfolio, growth and sustainability.

The **transformation of the portfolio** is shaped by the following themes:

- **Expansion of renewable energies:** Completion and commissioning of the offshore wind farms EnBW Hohe See in 2019 and EnBW Albatros in January 2020 with a total capacity of 609 MW (p. 70 and 76). In addition, the final investment decision for construction of the Weesow-Willmersdorf solar park in Brandenburg was taken – we will thus realise the first major solar project with an installed capacity of more than 180 MW without EEG funding (p. 99).
- **Supply reliability:** The subsidiaries of EnBW will continue to guarantee a high level of supply reliability in their grid areas and for their customers through the gradual modernisation of the distribution grids for electricity (p. 83).
- **Infrastructure provider:** We are continuously expanding electromobility through the further development of the charging infrastructure (Glossary, from p. 139), also together with national and international cooperation partners (p. 82).
- **Dismantling of nuclear power plants:** The environmentally friendly dismantling of the nuclear power plants is gradually being implemented. The Philippsburg nuclear power plant was shut down for good on 31 December 2019. Our stakeholders are regularly informed about the progress (p. 54 and 67).

The following themes are material in the three strategic business fields in the **growth** category:

- **Smart infrastructure for customers:**
  - We achieved a significant step in the expansion of our telecommunications business with the acquisition of Plusnet (p. 82).
  - We reorganised our IT and process landscape for sales and aligned it to meet the individual requirements of customers in the EnPower digitalisation project (p. 81).
- **System critical infrastructure:**
  - The expansion of the distribution grid for the integration of renewable energies is a key aspect for the success of the Energiewende for us and our grid subsidiaries (p. 43).
  - The transmission system operator TransnetBW is developing the transmission grids to bring wind energy from the north to the south in the SuedLink and ULTRANET grid expansion projects (p. 43).
- **Sustainable generation infrastructure:**
  - We are pursuing the goal of expanding renewable energies in France and exploiting opportunities for growth with the acquisition of the French project developer and operator of wind farms and solar parks Valeco (p. 43).
  - As part of our selective internationalisation strategy, we opened a representative office in Taiwan and two offices in the USA in 2019. The main focus in both countries is the expansion of offshore wind power (p. 38).

Sustainability is an integral component of our Group strategy (p. 41 ff.). The sustainability concept is aligned with the strategic guiding principles of the company and defines areas of action, targets and measures. Areas of action include, amongst others, the expansion of renewable energies, guaranteeing a reliable supply and increasing employee commitment. The concept takes into account external demands for sustainable corporate activities, derived from leading sustainability standards and ratings, as well as the integration of ecological and social aspects into the operating business. This process is oriented towards the strategic principles with respect to sustainability:

- **Sustainable economic development:** We endeavour to conduct all of our activities in a sustainable way, from the responsible procurement of raw materials (p. 60 f.) through to the provision of smart energy solutions for our customers (p. 81 f.). In addition, we are actively involved in the area of sustainable finance, which is exemplified by, amongst other things, the membership of our Chief Financial Officer, Thomas Kusterer, in the Technical Expert Group on Sustainable Finance (TEG) (Glossary, from p. 139) and his position on the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139) (p. 63). As part of the cooperation in these climate protection initiatives, he regularly reports to internal bodies on climate-related opportunities and risks.
- **Climate and environmental protection:** We continue to advocate the setting of a national minimum price for CO_2 emissions in the European Emissions Trading System with moderate increases in price over time. This would provide all those involved with planning security, especially for the expansion of renewable energies. We make an important contribution to climate protection through our significant investment in climate-friendly projects and business models (p. 63 and 74).
- **Commitment to our stakeholders and willingness to engage in dialogue:** We are actively integrating our stakeholders into the energy world of the future – by providing comprehensive information and opportunities for dialogue, such as the Energy & Climate Protection Foundation (p. 51).
- **Customer proximity:** In order to fulfil the needs of our customers to an even better extent, we develop innovative products such as in the area of telecommunications (p. 82) or the supply of climate-friendly gas (p. 56).
- **Commitment to our employees:** We want to ensure that the people at EnBW as well as our company have the opportunity for growth, development and a future (p. 85). We provide our employees with attractive offers, for example, in the areas of healthcare, pension provision and climate-friendly mobility (p. 83 ff.).
- **Regional roots:** Our roots lie in Baden-Württemberg and we recognise our special responsibility to this region – by investing in existing infrastructure (p. 76) and also through our voluntary and charitable work (p. 53 f.).

Sustainability ratings

We maintain close contacts with leading sustainability rating agencies and take their analyses and evaluations of the corporate strategy, the company situation and its business prospects into account in our decision-making process. In the selection of agencies, the main focus is placed on, amongst other things, transparent and plausible evaluations and efficient working processes between the rating agencies, companies, investors and sustainability analysts. EnBW strives to continuously improve its ratings from recognised agencies in the area of sustainability. We thus aim to strengthen our position as a responsible and sustainable company and also want to address those financial investors whose investment decisions are based wholly or partially on sustainability criteria. We were able to maintain our above-average results within the energy sector for important sustainability ratings in 2019.

Current sustainability ratings

	CDP	ISS ESG	MSCI	Sustainalytics
Earnings	B/Management (2019)	B- (2019)/Prime[1]	AA (2019)	77 (2019)/Outperformer
Scale	A to D-	A+ to D-	AAA to CCC	0 to 100
Relative position	"Electric Utilities" sector globally: EnBW achieved a place in the top 25%.	"Utilities/Multi-Utilities" sector globally: EnBW achieved a place in the top 10%.	"Utilities" sector globally: EnBW achieved a place in the top 24%.	"Utilities" sector globally: EnBW achieved a place in the top 14%.
Evaluation focus	Climate aspects	Social, governance and environmental aspects	Social, governance and environmental aspects	Social, governance and environmental aspects

1 The ratings were last updated on 21/12/2018. As of 31/12/2019, EnBW still held Grade B- and Prime status.

Further information on the sustainability ratings is available at www.enbw.com/sustainability. Further details on non-financial performance indicators are presented on p. 81 ff., while information on the financial ratings from the rating agencies Moody's, Standard & Poor's and Fitch can be found on p. 72 f.

Social engagement

We are acutely aware of our responsibility towards society. Our commitment to addressing the concerns and interests of society focuses on the target groups of end customers, business partners and local authorities within our primary business sphere of influence in Baden-Württemberg. Support for superordinate social issues is concentrated on the **core areas** of popular sport, education, social issues, the environment and art and culture.

The Group guidelines on corporate sponsoring, memberships, donations and involvement with universities govern the goals, responsibilities, standards, principles and processes for all companies in which EnBW AG holds a majority of either the shares or voting rights. **Donations** are documented on a yearly basis in the donation report that is presented to the Board of Management. In 2019, donations made by the EnBW Group came to €3.6 million, following €2.2 million in the previous year. Donations worth €1.8 million (2018: €604,000) were attributable to EnBW AG. The increase at both an EnBW AG and Group level was mainly attributable to donations made to foundations that are actively involved in our current and also future business fields. In addition, Netze BW has been requesting that customers submit their electricity meter readings electronically rather than by post since 2018. The postage saved was donated to numerous charitable organisations in the respective communities in 2019.

In 2019, **Pražská energetika (PRE)** supported the Charta 77 Foundation – Barriers Account – and the Jedlička Institute, which provides apprenticeships and social services for physically handicapped young people. **Stadtwerke Düsseldorf (SWD)** has helped schools with the task of guiding young people towards a career for many years. In addition, it participates in interschool competitions such as the "Düsseldorf School Prize" for outstanding school projects focussing on social, health or cultural topics. SWD makes a Christmas donation to four charitable associations in Düsseldorf that are selected each year. Through the VNG Foundation, **VNG** supports the "Network of Warmth" that promotes charitable work in Germany and the internationally renowned children's music project "OPEN WORLD" in Leipzig for German-Russian cultural exchange. The VNG subsidiary ONTRAS Gastransport supports charitable projects from associations and initiatives via its "ONTRAS.Stadtbekannt" programme and has participated in the "Foundation for volunteering and civic involvement in Mecklenburg-West Pomerania" since 2018.

The EnBW Board of Management decided a number of years ago not to send Christmas gifts to business partners but instead to make donations to social projects in Baden-Württemberg. As part of the **Christmas donations** in 2019, a total of €32,000 was given to eight charitable campaigns or campaigns initiated by readers of regional newspapers in Baden-Württemberg.

As part of the EnBW project "We're making it happen" (www.enbw.com/wir-machen-das-schon), EnBW AG also supported social or charitable projects with the **Making it happen bus** in 2019. Further information on this subject can be found at www.enbw.com/macherbus.

EnBW AG regularly offers young artists space in its buildings for their **exhibitions.** The "Jahresgaben" (Annual Gifts) exhibition from release Stuttgart e. V. has been a guest of ours for 20 years. The concept behind this sales exhibition is to give young and well-known artists the opportunity to present their works of art. The artists receive 50% of the sales proceeds for their work, while the other 50% goes to fund the work carried out by release Stuttgart e. V. This association based in Stuttgart is a reputable institution that provides help and advice to people with drug-related problems.

The immigration of refugees into Germany remains a major social, political and economic challenge. We already developed a training concept for refugees in 2015, with the goal of providing sustainable support with an eye to the future for the people affected. We have been running a multi-stage **career integration programme** since 2016. Since the beginning of 2019, 74 participants have been introduced to technical careers in introductory days and work placements during the first stage. A total of 41 participants then took part in the second stage from September 2019 to obtain an introductory qualification. In the third stage, 17 participants from last year's programme have been training for an IHK-certified technical profession in dual vocational training since September 2019.

The **"Let's Volunteer" initiative** was launched in 2019. This initiative supports employees who volunteer in their local communities by giving two employees €1,000 to donate to a charitable association each month.

We also refer you to the details provided in the "Report on opportunities and risks" (p. 103).

Dialogue with citizens

The **expansion of renewable energies** is an important goal that we are pursuing with great commitment. We plan, construct and operate wind farms and photovoltaic power plants in direct partnership with or with the participation of local authorities and citizens. At various sites, we offer free tours for visitors and visitor groups throughout the year.

In the **expansion of the transmission grids** for the purpose of connecting up renewable energies, the central infrastructure projects SuedLink and ULTRANET of our subsidiary TransnetBW are at the focus of public attention. There is a comprehensive range of opportunities for citizens to participate in both projects, e.g. in the form of public events held in the federal states and districts affected by the plans.

In October 2019, we also informed citizens about the expansion plans for the **pump storage power plant** in Forbach as part of a public consultation for citizens. Netze BW held a public information event in April about the planned construction of a new 110 kV **transformer station** in Tiefenbronn and also participated in the public consultations organised by the regional council for the 110 kV **grid expansion projects** in Ellwangen and Rot am See.

In 2020, we have ceased our operations at the **Stöckach site** in the east of Stuttgart and have thus created space for urban development. As a company with majority public ownership and a long history in Stuttgart, EnBW wants to make a contribution to affordable and innovative living. It wants to develop the new Stöckach site (www.der-neue-stoeckach.de) itself. The site will be used to construct up to 800 apartments with a total of at least 60,000 m² of living space, of which up to 40% will be subsidised housing. We plan to create opportunities for social interaction, leisure, local supply structures, health, energy supplies and mobility – supported by technological solutions. The participation of citizens will continue to play a central role in the project: Ideas from a series of workshops for citizens flowed into the urban planning competition that was concluded at the end of 2019.

Alongside economic and technical aspects, the Energiewende and the associated phasing out of nuclear energy also encompass elements of social responsibility. We unequivocally assume responsibility for the safe **dismantling** of the nuclear power plants we operate. Dialogue with the local population includes, for example, the annual information days on the dismantling work – an established platform that we used for the seventh time in 2019. Any interested citizens were invited to attend the events held at the sites in Philippsburg, Neckarwestheim and Obrigheim. In addition, those responsible for the dismantling work were available to answer questions at public meetings of the municipal councils, public hearings and information events. There was also dialogue with many citizens and functionaries who took part in the visitor tours at the nuclear power plants in 2019.

In dialogue with our stakeholders

Selected activities in dialogue with our stakeholders

Stakeholder	Opportunity for dialogue	Main themes	Further information
Shareholders/ capital market	Financial reports	Financial and non-financial performance of the company	www.enbw.com/financial-publications
	Annual General Meeting	Dialogue with shareholders	http://ir.enbw.com
	Telephone conferences/ discussions with analysts and investors	Corporate economic development, positioning on capital market	www.enbw.com/conferencecall www.enbw.com/investor-update
	Bankers' Day and Capital Market Day	Latest developments at EnBW and in the energy sector	www.enbw.com/bankersday www.enbw.com/capital-markets-day
Employees	Employee communication	New social Intranet, Yammer, four events by "EnBW aktuell", "Team" employee magazine	
	Compliance Day	Varied programme on the theme of "Responsibility" with around 100 participants	page 50
	Diversity campaigns	Diversity Week, Diversity Days, women's network meeting, participation in Christopher Street Day	page 84 www.csd-stuttgart.de
	"Let's Volunteer" initiative	Supporting the social engagement of employees	page 54
	"Making it happen" bus campaign	Employees of EnBW support social and charitable projects	page 53 www.enbw.com/macherbus
Customers	Participation in trade fairs and congresses	"Aktionstag Elektromobilität", Hannover Messe, Florte! The sector meeting place, Intercharge Network Conference, KEA Contracting Congress, EXPO REAL, etc.	
	Platforms for dialogue and discussion with customers	E.g. customer interviews and energy efficiency networks with seven meetings with various themes	
	Customer magazine, customer blog, social media channels, newsletter and local presence	Information on latest news, products, services and events from EnBW	www.facebook.com/enbw www.enbw.com/blog
	Customer blog, social media channels, newsletter, Yello campaign "Expect more"	Information on latest news, offers and services from Yello	www.facebook.com/yello.de instagram.com/yello_de https://youtube.com/yellostrom
Local authorities/ public utilities	Meeting of the regional advisory council	Invitation of a total of around 600 local authorities to eleven meetings of the regional advisory council	
	Meeting of the heads of public utilities	Specialist talks on current themes in the energy industry, e.g. e-mobility, district development	
Society/ environment	Climate protection campaigns	Discussion with the "Fridays for Future" movement, 1st Alumni Day for Junge Stiftung, employee campaign "EnBW'ers for climate protection"	www.energie-klimaschutz.de
	Energy on Tour	Educational project on the energy supply of the future for high schools	www.enbw.com/energie-auf-tour
	Tours, information and open days	More than 30,000 visitors to EnBW info centres and events at power plants	www.enbw.com/besichtigungen
	Biodiversity: funding programme "Stimuli for Diversity"	Realisation of further nine funding projects in the reporting year	page 90 www.enbw.com/biodiversitaet
	Stöckach Ideas Room	Information office and campaigns for the future use of the Stöckach site for interested citizens	www.der-neue-stoeckach.de
Suppliers/ business partners	Dialogue on handling coal procurement responsibly	Study on the working and living conditions in the Cesar coal mining region in Colombia, EnBW delegation visits Russia	page 60 f. www.enbw.com/responsible-coal-procurement
	AUGENHÖHEcamp #Companies in Karlsruhe	The Innovation Campus is the host for the unconference for organisations undergoing change	www.augenhoehe-ka.de
Politics/media	Discussion events on energy industry and climate protection topics	Urban Mobility Talks 2019, five debate evenings, cooperation events: "The future of mobility", presentation of the "Berghülen Solar Park" project	www.energie-klimaschutz.de
	EnBW Energy and Business Club (EWC)	Events on the themes: results from the structural change commission and the effects on the sector, expansion of renewable energies	
	Active and transparent communication via the media	Major articles in daily newspapers and magazines such as "Spiegel", "Süddeutsche Zeitung", "taz" or "ZEIT" and via social media channels; presentations at the Handelsblatt Conference and the BDEW Congress	www.enbw.com www.twitter.com/enbw www.facebook.com/enbw

Research, development and innovation

Research and development: Goals, guidelines and processes

The goal of our research and development is to identify technological trends at an early stage, assess their economic potential and build up expertise in the business units. For this purpose, we carry out pilot and demonstration projects together with partners or customers directly at the site of their subsequent application. This ensures that successful research projects deliver innovations for our company.

Research, development and innovation also lead in many cases to inventions and patents. The portfolio of patents grew by 36 patents (previous year: 25) in 2019; the EnBW Group held 244 patents (previous year: 208) at the end of the year. The patents held by EnBW focus mainly on the areas of smart solutions and electromobility.

Research and development: Selected activities

Wind energy: Offshore wind power plants with fixed foundations are limited to shallow waters with water depths of up to around 50 m. Floating platforms could be used to exploit the wind power potential in deeper waters. In cooperation with partners, we are investigating several different concepts for floating offshore wind farm projects that would be suitable for opening up new international offshore wind energy regions. We signed a technology partnership agreement with the engineering company aerodyn based in northern Germany at the end of 2019. Together, the partners will realise a novel design for floating wind turbines that offers the potential for cost savings because of the way it is constructed. The small-scale test that began in 2020 in Germany has immediately led to a test under real conditions, which will be carried out by the Chinese renewable technologies company Ming Yang from Shanghai. We want to develop another floating platform concept in cooperation with European partners and construct a pilot plant in Europe. The two demonstration projects will help us to identify which type of floating platform is especially suited for future projects.

In addition, we are a member of a consortium that is designing a prototype for an offshore power plant with an output of more than 10 MW and aims to construct it as a pilot plant with funding from the EU. Following the insolvency of Senvion, General Electric has joined the consortium and the project is being continued.

Photovoltaics: The University of Stuttgart has developed a laser process that enables the inexpensive production of non-toxic silicon solar cells with a high level of efficiency. We have been participating in this research project funded by the federal government since August 2017 and founded our subsidiary EnPV in December 2017 to prepare for the commercialisation of the results. EnPV investigated the industrial feasibility of the process in cooperation with factory outfitters in 2019. It is expected that it will then be possible to produce non-toxic PV modules at a cost that is commercially viable in comparison to current market prices. Some outstanding issues relating to individual steps of the patented process will be evaluated in 2020 so that it can be demonstrated in a pilot factory on industrial machines.

Geothermal energy: In addition to the production of electricity, geothermal energy has the potential to reduce the use of fossil fuels in heating networks. We support our partners, such as local authorities, in decarbonising their heating networks using geothermal energy. A project in Bruchsal has now come to fruition: The heating supply for a police station from the nearby geothermal power plant was inaugurated on 4 December 2019. We gained our experience in the provision of heating from geothermal energy through partnerships, in which we and our partners planned and constructed the geothermal power plants in Bruchsal (since 2012) and Soultz, France, (since 2016) and still operate them today.

Green gases and hydrogen: We also want to provide our customers with carbon-neutral gaseous energy sources in the long term. The experience gained from various pilot and demonstration projects will help us achieve this. Since the beginning of 2020, our subsidiary ZEAG has been generating green hydrogen with the aid of state funding. It is using a 1 MW PEM electrolyser (PEM = proton exchange membrane) that directly converts electricity from the "Harthäuser Wald" wind farm into green hydrogen. Our subsidiary Energiedienst Holding (ED) already opened an alkaline hydrogen electrolysis plant with an electrical output of 1 MW in Wyhlen in November 2018 – operated with green hydropower. In 2019, ED had its bid to expand the plant to up to 5 MW accepted as part of the "Reallabore" tender process of the German Federal Ministry for Economic Affairs and Energy (BMWi), with the aim of supplying districts, industrial premises and customers with hydrogen produced from electricity for their mobility needs. The project is due to start in 2020.

New technologies for the charging infrastructure (Glossary, from p. 139): Following preliminary studies, we will demonstrate a new method for contactless charging during journeys and test its suitability for everyday use in 2020. To this end, we entered into partnership in December 2019 with the young company ElectReon from Israel, which has developed an induction system for roads. It will be used for the first time on a test track in Baden-Württemberg. We are investigating how to speed up conventional charging without damaging the batteries using a special vehicle and a charging station with a capacity of up to 320 kW.

Load management for electromobility: The "E Mobility Avenue" project carried out by Netze BW in Ostfildern near Stuttgart ended in October 2019. The aim was to test the impact of the broad use of electromobility on the electricity grid. For this purpose, ten households on one street were provided with e-cars and the required charging infrastructure (Glossary, from p. 139). Netze BW believes that the results demonstrate that the challenges faced by the distribution grid operators as a result of the ramping up of electromobility can be overcome. In particular, the project showed that there is great potential for both smart load management to avoid bottlenecks and the temporary use of different types of battery storage systems to reduce the load on the grid. In addition, it was possible to gain valuable insights into the charging and user behaviour of drivers of electric cars. Follow-up projects in Tamm ("E-Mobility-Carré", p. 58) and a test field in a rural setting ("E-Mobility-Chaussee") have been launched.

Innovation management: Goals, guidelines and processes

The innovation process at EnBW

We develop new business models outside of our core business using the central innovation management department in order to quickly identify new sources of revenue and bring them to the market. The **innovation strategy** focuses on two main approaches: the generation and scaling up of new business models within the company in internal and external projects and investments in external start-ups by EnBW New Ventures.

Alongside the development of new business models and supporting start-up projects during the incubation phase, innovation management also accompanies mature projects during their growth phase with the **Company Builder**. In the reporting year, the focus was primarily placed on professionalising processes and scaling up existing projects. Following the successful development of new business models, the start-up teams then face further challenges in the growth and scaling-up phase. In order to efficiently support the teams and their growth, the Company Builder provides start-ups with additional skills in the form of controlling, sales and marketing experts.

EnBW New Ventures invests in start-ups that develop digital solutions for infrastructures. It focuses on companies who realise value added through scalable business models and new technologies. The aim is to use the total available investment volume of €100 million to secure minority shareholdings of between 10% and 30% in up to 20 start-ups, with an investment period of four to eight years in each case. EnBW New Ventures plays the role of an active investor, supports the start-ups as a business coach or kind of "sparring partner" and is represented on their boards. The start-ups receive access to professional investor expertise via EnBW New Ventures. In addition, commercial cooperation with the operating units at EnBW is also possible.

In future, EnBW will also secure majority shareholdings in quickly growing mature companies with the aim of achieving substantial growth.

Innovation: Selected activities

A successful early start-up from our idea factory is **ChargeHere**, which offers inexpensive charging infrastructure solutions for car parks and large parking facilities to promote the further expansion of electromobility. Instead of equipping every parking space with its own wallbox, the solution from ChargeHere only requires a central switching cabinet from which the charging cables are laid to the individual parking spaces. The concept also enables optimised, dynamic load management and controlled charging of the vehicles. ChargeHere is now in the growth phase and has twelve employees. We are also using ChargeHere to expand the charging infrastructure (Glossary, from p. 139) at our own sites; a total of 264 charging points were installed at six large sites in 2019. ChargeHere is also participating in the iLIME project (smart charging infrastructure management for e-mobility), which is being supported by the Ministry for the Environment, Climate Protection and the Energy Industry, Baden-Württemberg. In cooperation with its partners, ChargeHere is developing a concept in the project for a multi-level smart load management system for e-mobility. The ChargeHere charging solution with dynamic load management has also been used since autumn 2019 at a housing estate with apartment buildings and shared underground parking facilities in Tamm. Around two thirds of the parking spaces in this "NETZlabor E-Mobility-Carré" were equipped with ChargeHere charging points for a practical test to examine the best way to integrate electromobility into an existing grid infrastructure.

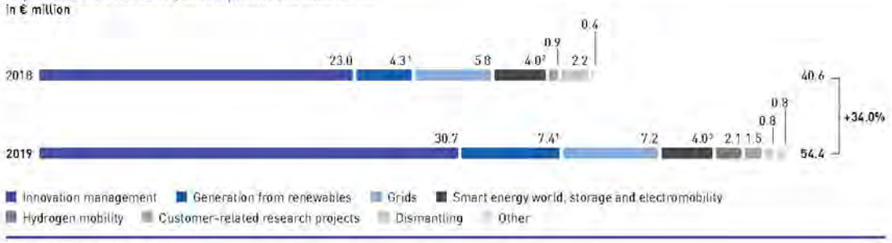
SMIGHT was one of our first start-ups and was able to continue its positive growth in 2019. Originally founded as a supplier of smart, multifunctional street lights, SMIGHT has since changed its business model significantly. As well as recording traffic flows in medium-sized German cities using sensors installed on existing street lights, it is increasingly focusing on the target group of distribution grid operators. A smart electricity sensor has been developed for these customers that supplies real time data about the actual grid load and thus supports the needs-based expansion of the grid. The first major customer was Netze BW, which has equipped 550 local transformer stations with the SMIGHT Grid electricity sensor. This has created 18,000 measurement points. Alongside traffic solutions, the grid sensor business remains a lucrative second pillar for SMIGHT.

The **Virtual Power Plant** (Glossary, from p. 139) is another mature start-up from the Company Builder. It collects and bundles together the renewable energy from smaller decentralised power plants such as wind turbines, photovoltaic plants or biomass power plants via its digital platform. The volumes of electricity that are collected are then sold on the electricity market. At the same time, the Virtual Power Plant also supplies consumers such as commercial customers or our quick-charging stations. It is growing constantly with the addition of new plant operators and cooperation partners. Electricity producers benefit from the fact that they have a competent partner to handle the sale and remuneration of the green energy. The Virtual Power Plant was founded in 2016 and has since developed into an established supplier on the market with around 30 employees and more than 1,000 customers. In 2019, we upgraded the Virtual Power Plant from an innovation project to a Micro Business Unit – a company within the company. Micro Business Units are mature projects that have already generated their first sales with a marketable business model.

Expenditure and personnel

We spent €54.4 million (previous year: €40.6 million) on research, development and innovation in the 2019 financial year. The increase was primarily due to the growth in innovation management; the corresponding sales increased to €11.1 million (previous year: €6.4 million). We received government research grants of €0.9 million (previous year: €2.3 million). There were 81 employees (previous year: 63) in the areas of research, development and innovation in 2019. 236 employees (previous year: 169 employees) were involved in research and development projects as part of their operational work. A further 130 employees (previous year: 110) were involved in innovation projects.

Expenditure on research, development and innovation
in € million



1 Also includes green gases.
2 Includes hydrogen mobility.
3 Excluding hydrogen mobility.

Procurement

Efficient and sustainable procurement processes

Our purchasing department views itself as a **partner for generating added value within the Group**. Its goal is to ensure the supply of materials and services at the best possible quality/cost ratio and thus strengthen the competitiveness of the company. We place great emphasis on the efficient design of our procurement processes for achieving cost-effective purchasing results, as well as on sustainable procurement taking into account the requirements of national laws, EU law and the Group's internal guidelines. In order to manage the procurement processes, a system using various different performance indicators is used. It continually delivers a realistic picture of the current situation in purchasing and enables a comparison of the target and actual situation, as well as the prompt implementation of control measures.

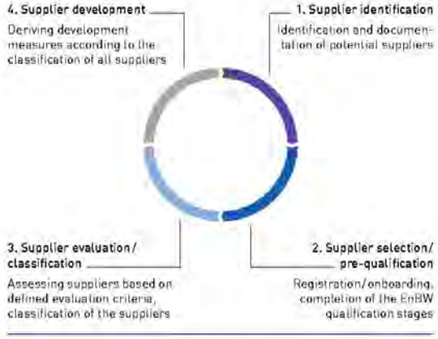
The **procurement volume** of the EnBW Group in 2019 (without ITOs) (Glossary, from p. 139) amounted to around €2.8 billion (previous year: around €2.5 billion).

Procurement volumes of the EnBW Group by segment
in %

A large number of suppliers and service providers contribute to the services we render. They play an important role in our efforts to achieve a leading position on the energy market. **Supplier management** promotes successful cooperation with our suppliers because it makes the performance of the suppliers transparent and also makes continuous optimisation in partnership possible. The careful selection of our business partners is a part of our risk management system and supports the observance of legal regulations and internally defined quality standards. Especially with regard to the selective internationalisation of the business, central purchasing is also developing an integrated **supply chain management system** in close cooperation with the business and functional units.

Sustainable procurement begins with the careful selection of business partners. Central purchasing at EnBW AG uses a standardised **pre-qualification process for this purpose.** Suppliers are required to provide a self-assessment via our supplier portal on whether they practise sustainable measures in the areas of data protection, quality management, environmental management, the respect for human rights, the fight against corruption and occupational health and safety. This self-assessment was completed by almost 90% of our suppliers by the end of 2019 (measured by procurement volume). The General Terms of Purchase of the EnBW Group and the additional purchasing regulations regarding occupational safety define other detailed requirements for our suppliers.

Supplier management process



Our **subsidiaries** that are not overseen by central purchasing address non-financial aspects in purchasing using their own mechanisms.

Energiedienst Holding (ED) works together closely with central purchasing at EnBW AG to procure important product groups using joint invitations to tender and framework contracts, as well as in the associated pre-qualification processes. In addition, orders are placed largely with regional suppliers from Germany, Switzerland or neighbouring EU countries.

Purchasing at the companies of **Pražská energetika (PRE)** ensures that suppliers pay social security contributions, settle their tax liabilities and do not engage in money laundering, amongst other things. Potential suppliers must verify their compliance with these aspects by either submitting a sworn declaration or by presenting corresponding certificates when bidding for invitations to tender. The fulfilment of these obligations is also stipulated in supplier contracts.

At **Stadtwerke Düsseldorf (SWD)**, sustainability aspects are anchored in the compliance guidelines, environmental management system manuals and process descriptions. In the area of procurement, SWD pays particular attention to the use of environmentally friendly and sustainable products. It also uses clauses in its supplier contracts as a way to reinforce the fight against corruption and bribery and to ensure observance of labour and social laws.

The fundamental principles for procurement at **VNG** are regulated by a code of conduct, the management handbook and Group guidelines. Aspects such as the prevention of corruption – which is embedded in the compliance management system and environmental protection are – a fixed component of procurement processes.

Responsible raw materials procurement in the coal sector

Origin of coal supplies

Hard coal will continue to play an important role for EnBW as a source of energy to ensure a reliable and economic supply of electricity. A total of 3.16 million t of coal was delivered to our power plants in 2019 (previous year restated: 3.81 million t of coal). This corresponds to a procurement volume of €170 million (previous year: almost €300 million).

Russia was able to further strengthen its leading position on the generally declining market in Western Europe due to its geographical proximity of the shipping ports. In contrast, Colombian coal has generally become less significant in Western Europe, in particular, because Colombian mining companies have been able to secure higher prices for their coal in America, Asia and the Mediterranean region. Due to these general market developments, we sourced the majority of our coal from Russia and the USA.

We place importance on maintaining a balanced procurement portfolio to avoid becoming dependent on individual producing countries, producers or traders, and the associated price and supply risks. 82% of our coal requirements are covered by contracts held directly with selected producers. The remainder is sourced from contracts concluded with trade intermediaries which generally define a quality standard but not the source of the coal. In addition, we maintain close contacts with other potential producers and traders to avoid any dependency on one single producer.

The Russian coal was sourced from the mining region of the Kuznetsk Basin (Kusbass) and was primarily mined by the producers SUEK and Kuzbassrazrezugol (KRU). The American coal was sourced from underground mines in the Illinois Basin and the northern Appalachians. The main producers were Murray Energy and Consol Energy. The Colombian coal was supplied by the company Drummond. The South African coal was supplied to us as part of a trading contract and was sourced from the Mpumalanga Province.

Further information on our coal procurement is available at www.enbw.com/coal-procurement. The opportunities and risks in relation to procurement and raw materials procurement can be found in the "Report on opportunities and risks" (p. 103).

Origin of coal supplies to EnBW power plants[1]
in million t

1 The figure for the previous year has been restated.

Positioning, overarching concepts and due diligence for the protection of human rights

In accordance with the Guiding Principles on Business and Human Rights of the United Nations, we strive to procure coal responsibly and thus to fulfil our human rights responsibilities. Due to the special challenges faced in the area of coal procurement, the ongoing CSR performance (Glossary, from p. 139) of current and potential coal suppliers is regularly discussed on the basis of the **EnBW rules of conduct** governing the responsible procurement of hard coal and other raw materials (www.enbw.com/verhaltenskodex) and used to determine any future action, especially requesting further specific information from selected suppliers. The coal suppliers are evaluated on the basis of relevant international standards, such as the UN Global Compact. The latest studies by competitors and international initiatives flow into the evaluation of producers, as do specific information and contributions from civil society organisations.

Our rules of conduct in combination with internal guidelines act as the foundation for our business activities. The annual assessment of coal producers is carried out using the EnBW sustainability index, which covers all areas of the rules of conduct. In addition to regular auditing of the sustainability performance of coal suppliers, a multi-stage auditing process will come into force in the event of suspected breaches of the rules, which can lead to the termination of the business relationship or exclusion from our procurement process. When new contracts are due to be concluded, the results of the analyses in the sustainability index are discussed with participation from all relevant specialist areas including representatives from the trading, compliance and sustainability departments. Findings from discussions with external stakeholder groups, such as representatives from civil society, legal experts for the individual countries and human rights experts, also flow into these analyses. If any deviations from the minimum standards are identified, corrective measures are implemented in cooperation with the producers for existing supply contracts. In 2019, there were several meetings of these representatives to discuss, in particular, the sustainability performance (Glossary, from p. 139) of the Russian coal producers on the basis of existing findings from the sustainability index, as well as current issues related to the import of raw materials.

Current developments

We have used extended measures to focus particularly on the coal producers from Russia and Colombia in the reporting year.

Russia

Due to the continuous increase in coal imports from Russia, we have also continuously intensified our efforts to fulfil our human rights responsibilities with respect to the Russian coal suppliers over the past three years. In the process, we are able to call on our experience from and the approaches we took in our engagement in Colombia.

We want to obtain better information on the working and living conditions in the mining regions in Russia, continue to strengthen our relationships with stakeholders and clearly communicate our minimum requirements for responsible coal procurement to our coal suppliers. We have thus carried out more in-depth research into the most important coal producers for our Russian coal supplies, sought direct contact with companies with requests for information about selected sustainability issues such as environmental protection and work standards and also carried out a business partner audit of the coal suppliers again in 2019 in cooperation with the compliance department due to enhanced public reporting requirements. In individual cases, we needed to verify the ownership structure and obtain further information about public controversies. For this purpose, we consulted with our competitors in order to increase the level of information on Russian coal producers in the Kusbass region and clarify how we can continue to positively influence the sustainability performance of the producers through dialogue and on-site inspections. Moreover, we are including CSR clauses in all direct business contracts concluded with Russian companies.

In November 2019, EnBW representatives travelled to Moscow and the Kusbass region to discuss sustainability issues with the producers relevant to us, namely SUEK and KRU. We discussed our requirements for occupational safety and compliance and, in particular, environmental protection, resettlement and compensation issues with both governmental and non-governmental players. The itinerary also included a tour of the mines from which we receive our main supplies. This allowed us to gain our own impression of additional measures being taken for water purification and the rules for maintaining an appropriate distance between residential areas and the mines. We were also able to address different solutions for environmental protection and for handling the concerns of residents. There are plans to examine the implementation of further measures in future trips to Russia in 2020 and to revisit the coal suppliers from the Kusbass region from whom we source our coal, so that we can examine the progress being made in respecting human rights along the value added chain.

Colombia

Although imports from Colombia have generally fallen sharply since 2018, we have continued the dialogue with Colombian producers in order to achieve ongoing and long-term improvement in their CSR performance (Glossary, from p. 139). The main focus of the engagement in Colombia was the completion of our previously announced progress and development report. The results presented in this report demonstrate how the Colombian mining companies in the Cesar region have set up and expanded the internal structures for complying with international human rights standards over the last five years. This includes a clear commitment to respecting human rights and internal management systems. The report analyses the most important effects with respect to sustainability along the coal supply chain. The main focus is placed on the areas of occupational safety and health, relationships with unions, resettlement of communities, environmental and health protection and security and combating violence. Overall, the progress and development report shows that the mining companies that were investigated had made progress over the last few years within their sphere of influence, even though there is still a need for these issues to be continuously addressed, also in cooperation with other producers, the government and above all local residents. On the basis of the results of the report, we are working with producers on further plans for action to improve the situation in these mining areas. Some representatives from civil society have criticised the results of the report and terminated their previously constructive dialogue with EnBW about coal procurement. We do not agree with the sweeping accusations that we have played down the severity of the issues and have handled the situation in Colombia uncritically and point instead to the extensive data and facts presented in the report. We are also available for objective dialogue with the NGOs in the future.

Other issues

In addition, we carried out (preliminary) investigations into the sustainability and compliance of producers from various countries with whom we may conclude (liquid) gas contracts in the future. From a sustainability perspective, we have not yet identified any anomalies with those companies with which we currently have an existing contractual relationship that would necessitate a more in-depth investigation into the companies.

Business report

General conditions

Macroeconomic trends

Economies

The global economy slowed down in 2019. The decline in economic growth had an impact on all of the economies relevant to us. The reasons for this slowdown in growth were primarily of a political nature: the trade disputes between the USA and China as well as the EU, uncertainties with respect to the United Kingdom exiting the EU and the threat of military conflict in the Near and Middle East. Structural problems in the automotive industry, which is highly important for the whole economy, also had a negative impact in Germany. In Turkey, the inflow of foreign investment has decreased and the tourism industry has declined due to the increasing political uncertainty.

The economic situation in Europe and Germany is expected to improve slightly in 2020 compared to 2019. This expectation is based on a recovery in foreign demand, primarily from high-growth emerging economies, and easing of the political risks, for example with respect to the trade disputes. The macroeconomic trends are not expected to have a either a particularly positive or negative influence on the business performance of EnBW in 2020.

Development of gross domestic product (GDP)

in %	2020	2019	2018[1]
World	3.4	3.0	3.6
Eurozone	1.4	1.2	1.9
Germany	1.2	0.5	1.5
France	1.3	1.2	1.7
Sweden	1.5	0.9	2.3
Switzerland	1.3	0.8	2.8
Czech Republic	2.6	2.5	3.0
Turkey	3.0	0.2	2.8

1 The figures for the previous year have been restated.

Development of interest rates

Although it appeared for a long time that the US Federal Reserve would increase the base interest rate again, there was a reversal in policy in the summer in the USA. The European Central Bank (ECB) continued its expansive monetary policy against the background of an economic slowdown.

The discount rates applied to company pension provisions and nuclear provisions fell further in 2019 so that the present value of the pension obligations of EnBW, in particular, rose due to interest rate-driven reasons.

The consensus forecast for the ECB interest rate on the main refinancing operations remained unchanged at 0.00%.

Development of the sector and competitive situation

Selection of international, national, regional and new competitors

The energy sector is currently experiencing a period of great upheaval. There is particular pressure for change due to the Energiewende. However, digitalisation, sector coupling (Glossary, from p. 139) and the desire of local authorities to become self-sufficient, for example, are also putting the sector under great pressure.

A significant factor is that the energy sector is highly regulated, which means that political policies strongly influence developments in the sector. In particular, this is currently affecting the restructuring of the generation landscape. Most importantly, renewable energies will increase their share of the transport and heating sectors in the long term. The business models of energy supply companies are changing at the same time, while new players from outside the sector are also entering the energy market. This is especially true for the commodity and solutions business. In addition, companies are repositioning themselves along the sector's traditional value chain and specialising in individual business fields.

The RWE subsidiary innogy has been split between E.ON and RWE in a deal that includes asset swaps between the two companies. This is having a major influence on the German and also the European energy market.

Traditional energy supply companies need to re-examine their competitiveness in individual business areas, exploit the potential offered by a changed market environment and align their strategies for the future.

Cross-segment framework conditions

Climate protection

The issue of climate protection is receiving a greater and greater amount of public attention. Clear examples of this can be found in the "Fridays for Future" movement and the results of the European elections.

In Germany, it is anticipated that the national climate targets for 2020 will be missed by a large margin. The climate action package introduced by the German government includes the phase-out of coal power, the introduction of charges for CO_2 emissions in the transport and heating sectors and numerous other measures, such as subsidies to promote electromobility. The aim is to increase the share of gross energy consumption accounted for by renewable energies to 65% by 2030. Despite the new climate protection measures it is, however, still not expected that the 65% target will be achieved – especially in view of the slow expansion of onshore wind energy.

We will continue to advocate the introduction of a minimum CO_2 price in the electricity sector and climate-based reform of the tax, duty and levy systems in order to help steer investment towards climate-friendly technologies.

The EnBW Chief Financial Officer, Thomas Kusterer, is a member of the EU Technical Expert Group on Sustainable Finance (TEG) (Glossary, from p. 139) which is developing a legal framework for sustainable financing opportunities. He is also engaged as a member of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139) in the development of climate-related risk reporting by companies.

Our strategy of concentrating investment on renewable energies, expanding the grids and developing new and increasingly digitalised business models supports the national climate protection targets and the international efforts for climate protection.

EU Green Deal

The framework conditions for achieving climate neutrality by 2050 are currently being defined at an EU level. At the end of 2018, the European Commission had already presented a revised analysis of possible climate pathways up to 2050. The EU now aims to enshrine the 2050 climate neutrality target, which was announced in its comprehensive Green Deal, into law. In addition, it will continue investigations into the effects of increasing the 2030 climate targets to at least 50% or 55% until autumn 2020 and make corresponding proposals for legislation in 2021. While the climate neutrality target is supported by the European Parliament and all member states except for Poland, and it is, therefore, probable that the legislation will pass quickly, further negotiations on the precise increase to the target for 2030 are expected.

In terms of the framework conditions facing EnBW and other players in the energy industry, further measures are expected as part of the Green Deal in future, such as a revision of the financial instruments and capital market guidelines as well as regulations and measures to decarbonise the gas and transport sectors.

Coal Commission

On 26 January 2019, the Coal Commission presented its final report, on the basis of which the Federal Government prepared a draft law and adopted it in the Federal Cabinet at the end of January 2020. This Act recommends the end of coal-fired power generation in Germany by 2038. German brown and hard coal capacities in the energy industry should be reduced to 15 GW each by 2022 (currently around 42 GW in total) and then to 17 GW in total by 2030. Incentives for the decommissioning of coal power plants should also be created by funding a fuel switch from coal to more climate-friendly energy sources.

The Cabinet decision of the Act deviates from the recommendations of the Coal Commission in some critical points. Due to the "late" decommissioning of brown coal power plants proposed by the law, it is expected that modern hard coal power plants will be removed from the grid relatively early. Negative implications for the operators of hard coal power plants are expected as a result of the intended "early" decommissioning of hard coal capacities without any compensation even for modern power plants.

It is feared that the proposed reform to the Combined Heat and Power Act (KWKG) that was also announced in the legislative package will not deliver sufficient incentives for promoting investment in the conversion of the supply of heating from coal to more climate-friendly fuels. EnBW will advocate that amendments are made to the draft law during the parliamentary process.

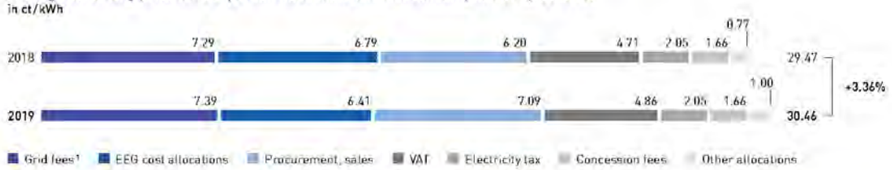
Sales segment

Electricity and gas prices for retail and industrial customers

According to an analysis of electricity prices by the German Association of Energy and Water Industries (BDEW) published in January 2020, the average monthly electricity bill for a household with an annual consumption of 3,500 kWh in 2019 came to €88.84 compared to €85.94 in the previous year. Taxes and levies account for more than half of this amount. EnBW increased the price for the basic supply of electricity by around €37 per year on 1 January 2019. The reason for this was the increased costs for the procurement of electricity. For industrial customers receiving a medium-voltage supply, the average electricity price including electricity taxes increased according to calculations made by BDEW by 2.6%, from 17.96 ct/kWh in the previous year to 18.43 ct/kWh in 2019.

According to calculations by the German Federal Statistical Office, natural gas prices for private households in 2019 rose by 3.9% compared to the previous year; in contrast, the price of gas for industrial customers fell by 7.5%.

Average electricity price for a 3-person household (annual consumption of 3,500 kWh)
in ct/kWh



1 Including metering and metering station operation
Source: BDEW | As of January 2020

Structural changes

The Climate Action Programme that was introduced by the German government and passed in October 2019 set a target for the provision of one million charging points for electric vehicles by 2030. This will be achieved with the **"Charging Infrastructure Master Plan"**. It contains measures for quickly establishing a comprehensive and user-friendly charging infrastructure (Glossary, from p. 139) for up to ten million e-cars by 2030. Furthermore, there are plans to simplify the regulations for the installation of charging infrastructure in the Act on the Ownership of Apartments and the Permanent Residential Right (WEG) and in tenancy law. The aim will be to make it obligatory for landlords to tolerate the installation of charging infrastructure.

In addition, the German government has increased the **subsidies for purely electric cars** with a list price of below €40,000 from €4,000 to €6,000. The subsidy increases to €5,000 for more expensive cars up to a limit of €65,000. Additional government subsidies, such as the tax exemptions for electric company cars that are valid from January 2019, create further incentives to purchase these e-cars.

We are engaged in the expansion of the charging infrastructure for household customers and also for commercial and local authority partners. As part of a programme in the Federal State of Baden-Württemberg to establish a **core charging network for electric vehicles in Baden-Württemberg (SAFE)**, a consortium of 81 partners under our leadership has established a comprehensive charging network for e-cars in Baden-Württemberg based on a grid with a mesh size of 10 km by 10 km (p. 82).

Another goal of the German government is to develop a climate-neutral building stock by 2050. Achieving high levels of **energy efficiency in buildings** is a key factor in this area. The Building Energy Act (GEG), which was passed at the end of 2019, brings together various legal requirements for the energy-related properties of buildings. As a consequence, there will be stricter standards for the installation of oil heating systems from 2026 and related to this, a 40% subsidy for exchanging an oil heating system for a more climate-friendly alternative. In addition, the already existing government subsidies will be increased by 10% and a tax incentive to subsidise energy-related renovation measures of 20% of the investment costs will be introduced in 2020. Many new buildings actually already meet these stricter energy-related requirements. Due to the lower heating demands in these buildings, heat pumps can be used as an energy-efficient form of heating and their use in new buildings has been increasing for a number of years. It is also possible to improve the energy efficiency of existing buildings by replacing the heating system. Due to the age structure of heating systems, this replacement rate is set to increase in the coming years. The replacement of a heating system is often also accompanied by a switch in energy source to natural gas, district heating or renewable energy sources. We believe that there are huge opportunities for growth as a result of the dynamics in the heating market.

Grids segment

On 9 July 2019, the German Federal Court of Justice (BGH) decided that the **rates of return on equity for electricity and gas grid operators** for the third regulatory period did not need to be corrected upwards. The Higher Regional Court (OLG) in Düsseldorf had previously annulled the rates of return on equity set by the Federal Network Agency (BNetzA) because they were set too low.

On 10 July 2019, the OLG Düsseldorf annulled the **general sectoral productivity factor** (Xgen) (Glossary, from p. 139) for gas grid operators that was defined by the BNetzA on 21 February 2018. The BNetzA filed an appeal against the judgement with the BGH on 10 October 2019. A decision on the Xgen for electricity grid providers defined by the BNetzA has not yet been handed down by the OLG Düsseldorf.

The reform of the **Grid Expansion Acceleration Act** (NABEG 2.0) was approved on 4 April 2019. The act aims to simplify and accelerate the approval process for the new construction and reinforcement of electricity lines at the high and extra-high voltage level in Germany. EnBW is hoping for improved framework conditions that will allow the transmission system operators (TSO) in particular to implement the urgently required grid expansion measures on time.

On 20 December 2019, the BNetzA completed its examination of the **Network Development Plan Electricity** (NDP Electricity) (Glossary, from p. 139) 2030 that had been drafted by the TSO. The approved NDP will act as the basis for the legally prescribed amendment to the Federal Requirements Plan. An additional HVDC connection (Glossary, from p. 139) to Baden-Württemberg that was planned for the grid area covered by our transmission system operator TransnetBW has been rejected by the regulatory authorities at this point in time as they do not believe that its approval is merited.

Aside from the expansion of the grids, the German TSOs are focussing on other measures to ensure security of supply. This includes an invitation to tender for the construction of 1,200 MW of new power plant capacity as **special technical equipment for grids**. In the tendering process held by TransnetBW for the construction and operation of a 300 MW power plant in south-western Germany, EnBW had its bid accepted in August 2019. The new power plant will be constructed at the EnBW power plant site in Marbach am Neckar. It will be placed into operation from 1 October 2022 in special emergency situations as a "safety buffer" for the supply of electricity and to support grid stability.

On 5 December 2019, the Federal Network Agency confirmed the framework scenario for the **Network Development Plan Gas** (NDP Gas) (Glossary, from p. 139) 2020 to 2030. For the first time, the framework scenario includes a separate presentation of the forecast for demand in Baden-Württemberg because the need for greater capacity here is growing constantly and the grid operated by our subsidiary terranets bw is heavily used. In comparison to the current demand for capacity, it is anticipated that over 30% more capacity will be required by 2030.

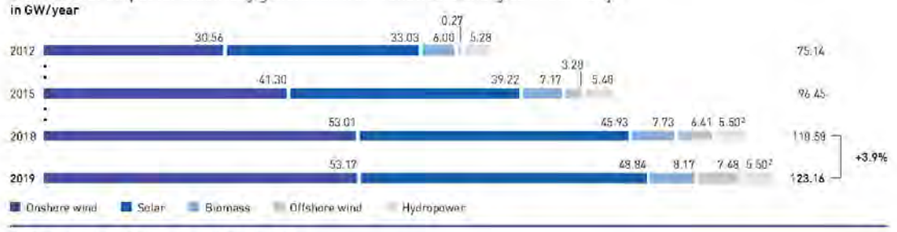
An increasing level of tension is expected overall in the regulated grid business. Investment in the expansion of the grids may reduce the earnings pressure on the grid operators but appropriate returns are necessary in order to continue pushing forward the expansion of the grids and to guarantee the security of supply in Germany. Overall, we anticipate that the grid business of the EnBW grid subsidiaries will be faced with more economically challenging framework conditions in the future.

Renewable Energies segment

Germany

Electricity generation from renewable energies overall in Germany rose significantly in 2019. According to Fraunhofer ISE (www.energy-charts.de) the proportion of total German electricity generation accounted for by renewable energies increased to almost 46% (2018: around 40%). Although there was a small rise in the installed output, this increase in comparison to the previous year is mainly attributable to better weather conditions.

Installed net output for electricity generation from renewable energies in Germany[1]
in GW/year



1 The figures for the previous year have been restated.
2 Correction to the value for hydropower from 4.8 GW to 5.50 GW by EnBW.
Source: Fraunhofer ISE (www.energy-charts.de) | As of 03/01/2020

The climate action package introduced by the German government increases the target for the expansion of **offshore wind power plants** in Germany from 15 GW to 20 GW by 2030. We view this as an important contribution towards achieving the climate targets and an opportunity for us to expand our offshore wind

portfolio beyond the projects we already have in operation and those currently under development.

In 2019, the growth in **onshore wind power capacity** slowed considerably due to the difficult approval conditions. Only around 700 MW of new output was placed into operation, which is around 75% less than in 2018. In the auctions held in 2019, only about half of the output available in the auctions was covered by projects. We were also considerably impacted by this development. In order to achieve the target of 65% generation from renewable energies by 2030, around 4,000 MW of new output will need to be added every year. The climate action package passed by the German government in December 2019 is not expected to accelerate the current slow expansion in onshore wind energy but will instead make this expansion more difficult due to the planned uniform minimum distance regulations. EnBW is campaigning strongly for an improvement in the approval conditions.

Due to the elimination of the 52 GW funding cap and progressively lower costs for PV modules, we anticipate that the **photovoltaic output** in Germany will continue to expand at an increasing rate. The construction of the Weesow-Willmersdorf solar park by EnBW – one of the first major projects without funding in Germany – demonstrates that photovoltaics have now also become economically viable here. The high appeal and availability of open-field photovoltaic plants in Germany was demonstrated by the fact that the auctions in 2019 were significantly oversubscribed.

France

We successfully entered the French market for renewable energies with the acquisition of Valeco in 2019. We expect dynamic growth in renewable energies in France, both in the wind power and photovoltaic sectors. The framework conditions in France, which are mainly centred around auction-based invitations to tender, guarantee continued and reliable funding for renewable energies.

Sweden

Sweden offers very favourable conditions and a competitive environment for renewable energies. In particular, onshore wind energy will play an increasingly important role on the Swedish generation market in the next few years. Since our entry onto the market in 2018, we have consistently expanded our wind power portfolio. The quota-based funding system for renewable energies that currently exists in Sweden means that power plants primarily generate their revenues on the electricity market. The sale of CO_2 allowances (Glossary, from p. 139) could be an additional source of revenue.

Turkey

The current funding mechanism in Turkey for the generation of electricity from renewable sources is valid for power plants that are placed into operation up until the end of 2020. Funding for all other power plants has been switched over to an auction-based system. Under this new system, a total of around 1,000 MW of onshore wind capacity will be awarded, for example, in 2019. We are expanding the wind power portfolio of our joint venture with our Turkish partner Borusan with two projects that are currently under construction. These wind power plants are due to be completed in 2020. We still believe that the Turkish market is an attractive proposition for the future, although we are monitoring the current political and economic developments in Turkey very closely.

Generation and Trading segment

Electricity wholesale market

Despite the significantly higher prices for CO_2 allowances (Glossary, from p. 139), the average spot market price (Glossary, from p. 139) in 2019 was around €7/MWh below the level in 2018. It is important to note in this context that the second half of 2018 was characterised by a sharp increase in prices due to low water levels and the associated bottlenecks in the supply of coal. In contrast, the average price on the forward market (Glossary, from p. 139) in 2019 was around €4/MWh higher than the average price in the previous year due to the increase in CO_2 prices.

Forward market prices (Glossary, from p. 139) reflect the expectation that prices will continue to increase. The reasons for this are the phasing out of nuclear power and the expected decommissioning of coal power plants. A decisive factor for the future development of electricity prices will be the development of fuel and CO_2 prices and the trends in the electricity generation mix.

Development of prices for electricity (EPEX), base load product

in €/MWh	Average 2019	Average 2018
Spot	37.67	44.47
Rolling front year price	47.79	43.84

Gas market

The spot market price (Glossary, from p. 139) fell considerably in 2019. On the one hand, the global supply of liquefied natural gas (LNG) increased due to new production facilities in the USA and Australia, which led to a noticeable increase in LNG deliveries to north west Europe, while on the other hand, above-average temperatures led to a much lower demand for heating. The fall in prices on the spot market also had an impact on annual prices.

Negotiations on a new gas transit contract between Russia and the Ukraine will be very significant for the further development of gas prices. In addition, it is possible that the LNG supply to Europe will increase further due to the commissioning of additional LNG facilities in the USA.

Development of prices for natural gas on the TTF (Dutch wholesale market)

in €/MWh	Average 2019	Average 2018
Spot	13.91	22.98
Rolling front year price	18.19	20.70

Oil market

Crude oil prices increased from US$55/bbl to US$75/bbl during the course of 2019. Production cuts by OPEC and some non-OPEC countries such as Russia eliminated the oversupply on the global market and supported prices. The conflict between Iran and the USA, combined with the threat made by Iran to block the Strait of Hormuz which is important to the oil trade, and the drone and rocket attacks on important oil facilities in Saudi Arabia also contributed to the higher prices. In contrast, concerns about the global economy and thus the demand for oil also had an effect on the development of the market in 2019. In this context, oil prices were negatively influenced, in particular, by the ongoing trade dispute between the USA and China.

Forward market prices are reflecting the expectation that prices will continue to fall. This expectation is due to fears of an excess supply on the oil market because of, amongst other things, the sharp rise in oil production in non-OPEC countries and lingering concerns regarding the economy and the associated fall in global demand for oil. However, there is also great potential for prices to spike if the ongoing conflict between Iran and the USA and Saudi Arabia escalates in the future.

Development of prices on the oil markets

in US$/bbl	Average 2019	Average 2018
Crude oil (Brent) front month (daily quotes)	64.16	71.69
Crude oil (Brent), rolling front year price (daily quotes)	61.31	68.94

Coal market

Both the front year price and the spot market price fell significantly during the course of 2019. The main reasons for this fall in prices were the oversupplied global market and the considerable decrease in demand in Europe. In Europe, coal-fired electricity generation is being replaced to a large extent by renewable energies and often by cheaper gas-fired electricity generation due to the very low gas prices and relatively high emission allowance prices. In addition, China introduced restrictions on imported coal in the fourth quarter of 2019.

If the described trends continue, coal prices on both the spot market and the forward market (Glossary, from p. 139) will remain under pressure. As by far the largest consumer of coal in the world, China has a dominant influence on the international coal market. The increasing expansion of domestic coal production in China will continue to have a significant effect on coal imports into the country and thus on the global market.

Development of prices on the coal markets

in US$/t	Average 2019	Average 2018
Coal – API #2 rolling front year price	69.76	87.03
Coal – API #2 spot market price	60.75	91.91

CO_2 allowances

Under the European emissions trading system, proof must be provided of the correct number of CO_2 allowances (Glossary, from p. 139) for the corresponding CO_2 emissions from power plants. The reduction in supply (so-called market stability reserve, MSR) for emissions allowances agreed in 2018 resulted in a further increase in the price for EUA certificates (Glossary, from p. 139) in 2019. The number of certificates available in 2019 was reduced by around 400 million, which was almost 50% less.

Further increases in the prices for EUA certificates are expected in the next few years. The largest driver of prices will continue to be the reduction in supply via the MSR.

Development of prices for emission allowances/daily quotes

in €/t CO_2	Average 2019	Average 2018
EUA – rolling front year price	24.88	15.62
CER – rolling front year price	0.21	0.24

Nuclear power

The coalition agreement of the German government sets out the framework for current nuclear power policy. The main targets are the retention of specialist personnel and expertise, quick progress in the search for a final storage site for highly radioactive waste (by 2031) and the rapid commissioning of the final storage site for low- and medium-level radioactive waste (2027 according to the current plans). This should prevent the intermediate storage at the power plant sites becoming, to all intents and purposes, the final storage sites. On the basis of a ruling by the German Federal Constitutional Court from 6 December 2016, operators of nuclear power plants should receive compensation payments for investment in the period between the decision to extend the lives of the nuclear power plants (28 October 2010) and the reversal of this decision (from 16 March 2011), as well as for residual volumes of electricity remaining at power plants that can no longer be distributed. On the basis of the public law contract according to the Act for the Reorganisation of Responsibility in Nuclear Waste Management, EnBW has submitted an application for the approval of the return transport of radioactive waste from the reprocessing centre in France to the intermediate storage site at the Philippsburg nuclear power plant. A precise date for the transport has still not been agreed. On the basis of the same public law, the intermediate storage facility for highly radioactive waste was handed over to the German government on 1 January 2019. The waste storage facilities for low- and medium-level radioactive waste will follow on 1 January 2020. The authorisation to operate the Philippsburg 2 nuclear power plant for the purpose of generating power expired on 31 December 2019.

The EnBW Group

Finance and strategy goal dimensions

Results of operations

Electricity sales increase, gas sales fell compared to the previous year

Electricity sales (without Grids)

In billions of kWh[1]	Sales		Renewable Energies		Generation and Trading		Total (without Grids)		Change in %
	2019	2018	2019	2018	2019	2018	2019	2018	
Retail and commercial customers (B2C)	14.8	14.9	0.0	0.0	0.0	0.0	14.8	14.9	-0.7
Business and industrial customers (B2B)	20.5	21.9	0.0	0.0	0.0	0.0	20.5	21.9	-6.4
Trade	2.0	0.9	2.9	2.4	112.4	96.7	117.3	100.0	17.3
Total	**37.3**	**37.7**	**2.9**	**2.4**	**112.4**	**96.7**	**152.6**	**136.8**	**11.5**

1 The figures for the previous year have been restated

In the 2019 financial year, electricity sales were higher than in the previous year. Due to the changed classification of three companies, there was a slight shift in the figures for the previous year for the Sales and Generation and Trading segments. In a persistently challenging competitive environment, electricity sales to retail and commercial customers (B2C) stood at the same level as in the previous year. Sales to business and industrial customers (B2B) fell slightly as a result of the withdrawal from the B2B commodity business under the EnBW and Watt brands. Increased trading activities resulted in an increase in sales. However, the effect of the trading activities on the earnings potential of our company is limited. Adjusted for the effects of changes in the consolidated companies, the increase in electricity sales was 11.2%.

Gas sales (without Grids)

In billions of kWh[1]	Sales		Renewable Energies		Generation and Trading		Total (without Grids)		Change in %
	2019	2018	2019	2018	2019	2018	2019	2018	
Retail and commercial customers (B2C)	17.4	17.1	0.0	0.0	0.0	0.0	17.4	17.1	1.8
Business and industrial customers (B2B)	56.2	50.8	0.0	0.0	0.0	0.0	56.2	50.8	10.6
Trade	0.5	0.3	0.1	0.1	222.8	260.4	223.4	260.8	-14.3
Total	**74.1**	**68.2**	**0.1**	**0.1**	**222.8**	**260.4**	**297.0**	**328.7**	**-9.6**

1 The figures for the previous year have been restated.

Gas sales decreased in 2019 in comparison to the previous year. Due to the changed classification of three companies, there was a shift in the figures for the previous year for the Sales and Generation and Trading segments. In addition, there was also a reclassification within the Generation and Trading segment. In a challenging competitive environment, gas sales in the retail customer business (B2C) were slightly above the level in the previous year. In the 2019 financial year, sales to business and industrial customers (B2B) exceeded the level in the previous year due to higher sales to existing customers and the acquisition of new customers by individual brands. This was offset to some extent by the withdrawal from the B2B commodity business under the EnBW and Watt brands. Trading activities fell compared to the previous year. However, the effect of the trading activities on the earnings potential of our company is limited. There were no effects due to changes in the consolidated companies.

External revenue lower than previous year especially due to decrease in gas sales

External revenue by segment

In € million[1,2]	2019	2018	Change in %
Sales	7,679.0	7,347.7	4.5
Grids	3,459.7	3,215.4	7.6
Renewable Energies	653.1	477.5	36.8
Generation and Trading	6,970.1	9,767.8	-28.6
Other/Consolidation	3.2	7.0	-54.3
Total	**18,765.0**	**20,815.4**	**-9.9**

1 The figures for the previous year have been restated
2 After deduction of electricity and energy taxes

Adjusted for the effects of the changes in the consolidated companies, external revenue fell by 10.7% or €2,237.4 million in comparison to the previous year. The figures for revenues in the previous year were restated due to the IFRIC agenda decision "Physical settlement of contracts to buy or sell a non-financial item (IFRS 9)". The application of the agenda decision only resulted in a reporting change and had no effect on EBITDA. Due to the changed classification of three companies in the previous year, there was also a slight shift between the segments.

Sales: In the 2019 financial year, external revenue in the Sales segment increased in comparison to the previous year. Adjusted for the effects of the changes in the consolidated companies, this would have been an increase of 2.3% or €173.5 million. This was primarily due to higher gas sales.

Grids: External revenue in the Grids segment in 2019 was higher than the figure in the previous year, especially due to higher earnings from the use of the grids. Adjusted for the effects of the changes in the consolidated companies, this would have been an increase of 8.4% or €266.8 million.

Renewable Energies: Revenue in the Renewable Energies segment in the 2019 financial year exceeded the level in the previous year. This increase was attributable to the commissioning of our EnBW Hohe See offshore wind farm, as well as higher generation volumes from our other offshore and onshore wind farms and our run-of-river power plants due to the weather. Adjusted for the effects of the changes in the consolidated companies, this would have been an increase of 13.0% or €75.0 million.

Generation and Trading: Revenue in the Generation and Trading segment decreased significantly in comparison to the previous year. Adjusted for the effects of the changes in the consolidated companies, there was a decrease in revenue of 28.3% or €2,746.8 million. This decrease was mainly due to a fall in sales and lower prices in the area of gas trading.

Material developments in the income statement

The fall in the cost of materials corresponds to the decrease in gas revenues. The balance from other operating income and other operating expenses in the reporting period increased from €-95.2 million in the previous year to €251.1 million in the reporting year. This increase was mainly attributable to valuation effects from derivatives (Glossary, from p. 139). The financial result improved in 2019 in comparison to the previous year by €284.6 million to €-95.8 million (previous year: €-380.4 million). Higher expenses caused by the drop in the discount rate for nuclear provisions were more than compensated for by the positive effect from the market valuation of securities. The improvement in the investment result was attributable to the revaluation of the shares in EnBW Hohe See, which since 1 October 2019 has no longer been accounted for using the equity method but was instead fully consolidated. Overall, earnings before tax (EBT) stood at €902.2 million in the 2019 financial year, after €596.3 million in the previous year. The complete consolidated financial statements can be found at www.enbw.com/report2019-downloads.

Earnings

The Group net profit/loss attributable to the shareholders of EnBW AG increased from €334.2 million in 2018 by €400.0 million to €734.2 million in the reporting period. Earnings per share amounted to €2.71 in the 2019 financial year compared to € 1.23 in the previous year.

Adjusted earnings and non-operating result

The sum of the adjusted earnings figures and non-operating figures gives the figures on the income statement. The non-operating result includes effects that cannot be predicted or cannot be directly influenced by us and as such are not relevant to the ongoing management of the company. The effects are presented and explained in the section "Non-operating EBITDA". The business activities relevant to the ongoing management of the company are of particular importance for internal management and for the external communication of the current and future earnings potential. We use the adjusted EBITDA – earnings before the investment and financial results, income taxes and amortisation, adjusted for non-operating effects – as the key reporting indicator for disclosing this information.

TOP Adjusted EBITDA and TOP the share of the adjusted EBITDA accounted for by the segments

Adjusted EBITDA by segment

in € million[1]	2019	2018	Change in %	Forecast 2019
Sales	294.3	268.4	9.6	€225 to €300 million
Grids	1,311.2	1,176.9	11.4	€1,300 to €1,400 million
Renewable Energies	482.8	297.7	62.2	€425 to €500 million
Generation and Trading	383.8	430.8	-10.9	€350 to €425 million
Other/Consolidation	-39.6	-16.3	-142.9	–
Total	**2,432.5**	**2,157.5**	**12.7**	**€2,350 to €2,500 million**

1 The figures for the previous year have been restated

Share of adjusted EBITDA accounted for by the segments

in %[1]	2019	2018	Forecast 2019
Sales	12.1	12.4	5% to 15%
Grids	53.9	54.5	50% to 60%
Renewable Energies	19.9	13.8	15% to 25%
Generation and Trading	15.8	20.0	10% to 20%
Other/Consolidation	-1.6	-0.7	–
Total	**100.0**	**100.0**	

1 The figures for the previous year have been restated

The adjusted EBITDA increased in 2019 compared to the previous year. This positive earnings performance was within the forecasted range for the 2019 financial year. The first-time application of the leasing standard IFRS 16 led to an increase in adjusted EBITDA of €114.2 million or 5.3%. Adjusted for the effects of the changes in the consolidated companies, the adjusted EBITDA was 8.1% higher than the level in the previous year. Due to the changed classification of three companies, there was a slight shift in the figures for the previous year for the Sales and Generation and Trading segments. All segments achieved a result within their forecasted range for 2019. The share of the adjusted EBITDA accounted for by each of the segments was also within the forecasted range.

Sales: The adjusted EBITDA in the Sales segment increased in the 2019 financial year in comparison to the previous year. Plusnet has been contributing to earnings since the beginning of the third quarter. Adjusted for the effects of the changes in the consolidated companies, earnings stood at almost the same level as in the previous year (-0.5%). Even without these largely unplanned effects, the result still stood in the middle quantile of the forecasted range.

Grids: In the Grids segment, the adjusted EBITDA increased in the 2019 financial year in comparison to the previous year. Adjusted for the effects of changes in the consolidated companies, the increase was 11.3%. The main factor influencing this positive earnings performance was higher revenue from the use of the grids, especially due to the increased investment that is necessary for ensuring the security and reliability of supply of the grids as well as the first-time application of the new leasing standards IFRS 16 in the 2019 financial year.

Renewable Energies: The adjusted EBITDA in the Renewable Energies segment for the 2019 financial year exceeded the level in the previous year. Adjusted for the effects of the changes in the consolidated companies which mainly involved the EnBW Hohe See offshore wind farm and the acquisition of Valeco, the increase was 23.3%. Our EnBW Hohe See offshore wind farm has been contributing to earnings since it was commissioned at the beginning of the fourth quarter. The acquisition of Valeco resulted in a contribution to earnings from the beginning of the third quarter. In addition, better wind conditions at our offshore and onshore wind farms and higher water levels at our run-of-river power plants contributed to the positive earnings performance.

Generation and Trading segment: In the Generation and Trading segment, the adjusted EBITDA fell in the 2019 financial year compared to the previous year. Adjusted for the effects of the changes in the consolidated companies which mainly involved the sale of VNG Norge and its subsidiary VNG Danmark in 2018, the decrease was 4.4%. As forecast, this development was largely attributable to lower out-of-period earnings in comparison to the previous year. In contrast, the higher availability of the nuclear power plants had a positive effect. In addition, we sold our electricity deliveries on the forward market at higher wholesale market prices than in the previous year (Glossary, from p. 139).

Development of non-operating EBITDA influenced by increased allocations to provisions for onerous contracts for electricity procurement agreements

Non-operating EBITDA

in € million	2019	2018	Change in %
Income/expenses relating to nuclear power	-61.9	-132.1	53.1
Income from the reversal of other provisions	48.2	11.8	–
Result from disposals	18.4	89.0	-79.3
Reversals of/additions to the provisions for onerous contracts relating to electricity procurement agreements	-54.8	39.2	–
Income from reversals of impairment losses	4.5	22.1	-79.6
Restructuring	-41.0	-49.1	16.5
Other non-operating result	-100.7	-48.8	-106.4
Non-operating EBITDA	**-187.3**	**-67.9**	**-**

The fall in non-operating EBITDA in comparison to the previous year was due to, amongst other things, allocations to provisions for onerous contracts for long term electricity procurement agreements. In the previous year, there were higher reversals of provisions. In addition, the sale of VNG Norge and its subsidiary VNG Danmark had a positive effect on earnings in the previous year. The reason for the fall in the other non-operating result was the allocations to risk provisions for a possible obligation to pay EEG cost allocations (Glossary, from p. 139) for the company's own energy deliveries within the EnBW Group.

Significant increase in Group net profit compared to previous year

Group net profit

in € million	2019			2018		
	Total	Non-operating	Adjusted	Total	Non-operating	Adjusted
EBITDA	**2,245.2**	**-187.3**	**2,432.5**	**2,089.6**	**-67.9**	**2,157.5**
Amortisation and depreciation	-1,648.5	-160.7	-1,487.8	-1,213.8	-13.8	-1,200.0
EBIT	**596.7**	**-348.0**	**944.7**	**875.8**	**-81.7**	**957.5**
Investment result	401.3	270.9	130.4	100.9	-50.6	151.5
Financial result	-95.8	-176.0	80.2	-380.4	-18.6	-361.8
EBT	**902.2**	**-253.1**	**1,155.3**	**596.3**	**-150.9**	**747.2**
Income tax	2.1	191.0	-188.9	-128.7	51.9	-180.6
Group net profit/loss	**904.3**	**-62.1**	**966.4**	**467.6**	**-99.0**	**566.6**
of which profit/loss shares attributable to non-controlling interests	(170.1)	(-9.5)	(179.6)	(133.4)	(5.1)	(128.3)
of which profit/loss shares attributable to the shareholders of EnBW AG	(734.2)	(-52.6)	(786.8)	(334.2)	(-104.1)	(438.3)

The increase in impairment losses was primarily attributable to impairment losses on power plants – due to the quicker phase-out pathway for hard coal. The improvement in the non-operating investment result was mainly due to the revaluation of the shares in EnBW Hohe See, which has been fully consolidated in the EnBW consolidated financial statements since 1 October 2019. The company was accounted for using the equity method until this point in time. The increase in the financial result in comparison to the previous year was the result of, amongst other things, the market valuation of securities. In contrast, the development of the discount rate for nuclear provisions had a negative effect.

Financial position

Financial management

Basis and objectives

The purpose of our financial management system is to ensure that EnBW is able to meet its payment obligations at all times without restriction. In order to minimise risk, optimise costs and increase transparency, financial transactions are managed within the Group finance department as far as possible.

In the operating business, derivatives (Glossary, from p. 139) are generally deployed for hedging purposes only: for example, for forward contracts for electricity and primary energy source trading. This also applies for foreign exchange and interest rate derivatives. Proprietary trading is only permitted within narrow, clearly defined limits.

Interest rate risk management involves the management and monitoring of interest-sensitive assets and liabilities. The included companies regularly report on the existing risk position via the rolling liquidity planning. An interest rate risk strategy is developed in an analysis conducted every quarter on an aggregated basis. The purpose is to limit the impact of fluctuations in interest rates and interest rate risks on the results of operations and net assets.

The interest rates on financial liabilities are predominantly fixed. We use interest rate derivatives to keep the relationship between fixed and variable interest rates within predefined limits in order to optimise interest income. The potential risk is determined on the basis of current interest rates and possible changes in these interest rates.

Generally, currency positions resulting from operations are closed by appropriate forward exchange contracts. Overall, currency fluctuations from operating activities do not have any major effect on our operating result. Foreign exchange risks are monitored on a case by case basis within the framework of the currency management system. Details on the risk management system are presented in note 25 of the notes to the consolidated financial statements at www.enbw.com/report2019-downloads.

We continue to strive to maintain a balanced financing structure, solid balance sheet ratios and solid investment-grade ratings (Glossary, from p. 139).

The ongoing strategic development of our company is designed to continuously increase the operating result (adjusted EBITDA). Our target value for adjusted EBITDA of €2.4 billion in 2020 has been raised to €3.2 billion in 2025. To maintain a good creditworthiness at the same time, we stick to a high level of financial discipline.

Until the transformation of our portfolio has been completed by the end of 2020, the internal financing capability serves as an important performance indicator for the Group. It describes the adjusted retained cash flow in relation to the adjusted net (cash) investment and measures our company's ability to finance its activities internally. In the growth phase post 2020, internal financing capability will be replaced by the debt repayment potential – the ratio of the retained cash flow to net debt. This performance indicator is oriented to the relevant key ratios used by the rating agencies and should allow controlled growth.

Rating and rating trends

We aim to hold solid investment-grade ratings in order to:

- ensure unrestricted access to capital markets
- offer reliable opportunities for financing partners
- be regarded as a dependable business partner in our trading activities
- achieve the lowest possible capital costs
- implement an appropriate number of investment projects and thereby maintain the future viability of the company

Development of credit ratings – rating/outlook

	2019	2018	2017	2016	2015
Moody's	A3/negative	A3/stable	Baa1/stable	A3/negative	A3/negative
Standard & Poor's	A-/stable	A-/stable	A-/stable	A-/negative	A-/stable
Fitch	A-/stable	A-/stable	A-/stable	A-/stable	A-/stable

In the middle of June 2019, Moody's confirmed its A3 rating for EnBW but lowered the outlook to negative. In its rationale for the negative outlook, the rating agency pointed to the acquisitions of Valeco and Plusnet. Moody's believes that the two acquisitions support the strategic development of our company, however they have come too early. In addition, the low interest rate environment is having a negative effect on the present value of the pension and nuclear provisions. In its regular update, Standard & Poor's (S&P) confirmed its EnBW rating of A- with a stable outlook at the end of July 2019. The EnBW rating from Fitch remains unchanged at A-/stable.

Assessment by the rating agencies

Moody's (14/06/2019)	Standard & Poor's (26/07/2019)	Fitch (28/09/2018)
Leadership position as vertically integrated utility within Baden-Württemberg	Increasing share of operating income from low-risk regulated activities and long-term contracted renewables	Continued evolution towards a more regulated and contracted business profile
Around 50% of EBITDA from low-risk regulated distribution and transmission activities and growing share of renewables under contracts, as EnBW continues to invest in line with its strategy	Well-diversified sources of cash flow	High earnings visibility in grids and renewables partly offset by residual nuclear decommissioning risk; payment of €4.8 bn for transferring responsibility for nuclear waste storage has substantially reduced these risk
Historically balanced financial policy and demonstrated commitment to maintaining a robust credit quality	Geographical diversification in the renewables segment in Taiwan, the U.S. and France	Average forecast credit metrics are generally stronger than peers, with some exceptions with respect to funds from operations (FFO) fixed charge cover
Evolving operating environment in Germany for conventional generation and challenging environment in retail markets	Difficult operating environment in Germany for conventional power generation	If the share of regulated EBITDA exceeds 50% on a sustained basis, Fitch may apply a one-notch uplift to the senior unsecured rating
Certain execution risks relating to large investment programme	Still significant exposure to volatile and commodity-driven wholesale power prices	
Anticipated erosion of financial flexibility following acquisitions of VALECO and Plusnet in 2019	Debt increase following the integration of new acquisitions, in line with the company's strategy	
Strong shareholder support	Prudent financial policy	
	Moderate likelihood of government support	

Financing strategy

We manage the financing needs of our operating activities separately from the Group's pension and nuclear obligations. As part of the financing strategy, we constantly assess capital market trends with regard to the current interest rate environment and to any potentially favourable refinancing costs. On this basis, we decide on further financing steps.

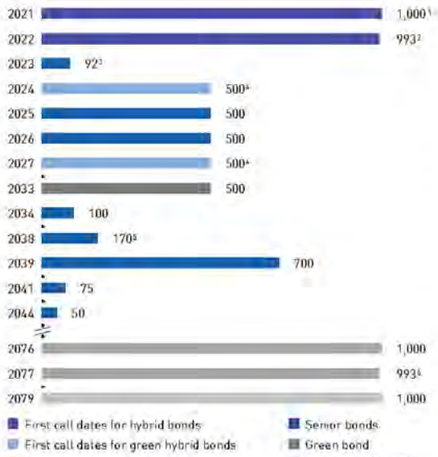
Alongside the internal financing capability and our own funds, we have the following financing instruments at our disposal to cover the financing needs for the strategic development of the operating business:

- Debt Issuance Programme (DIP) (Glossary, from p. 139), via which bonds are issued: €2.7 billion of €7.0 billion has been drawn
- Hybrid bonds: €3.0 billion. In July, EnBW issued two green hybrid bonds with a volume of €500 million each.
- Commercial paper (CP) programme (Glossary, from p. 139): €2.0 billion undrawn
- Syndicated credit line: €1.5 billion undrawn with a term until 2021
- Bilateral free credit lines: €0.7 billion of €1.4 billion drawn
- Project financing and low-interest loans from the European Investment Bank (EIB)

Documentation of short-term and long-term borrowings on the capital markets under the established DIP and CP programme, as well as all other credit documentation with banks (e.g. syndicated lines of credit) include internationally standardised clauses. The issuing of a negative pledge, as well as a pari passu clause (Glossary, from p. 139), to all creditors form essential key elements of our financing policy. The use of undrawn credit lines is not subject to restrictions. Details on financial liabilities are presented in note 22 and explanations on other financial commitments are presented in note 26 of the notes to the consolidated financial statements at www.enbw.com/report2019-downloads.

The maturities of the EnBW bonds have been further diversified.

Maturity profile of EnBW bonds
in € million



1 First call date: hybrid maturing in 2076
2 First call date: hybrid maturing in 2077; includes US$300 million (swap in €); coupon before swap 5.125%
3 CHF 100 million; converted in € as of 31/12/2019
4 First call date: hybrid maturing in 2079
5 JPY 20 billion (swap in €); coupon before swap 5.460%
6 Includes US$300 million; converted in € at rate on 05/10/2016

Green bonds
We issued our first two green hybrid bonds with a total volume of €1 billion on 29 July 2019. EnBW was thus the first German issuer to launch a green hybrid bond. The rating agencies classify half of the hybrid bonds as equity, which has a positive effect on the credit profile.

In line with our strategy, we are increasingly investing in climate-friendly growth projects. This was the reason why we executed a second green transaction after we had already issued the first green bond (Glossary, from p. 139) with a volume of €500 million in October 2018. The proceeds from the green hybrid bonds will be used for the expansion of offshore and onshore wind power and photovoltaic projects.

We were the first company to issue bonds according to the EU Prospectus Regulation from 21 July 2019. The sustainability rating agency ISS ESG and the Climate Bonds Initiative (CBI) examined and certified the two green hybrid bonds according to sustainability criteria.

The two bonds each have a volume of €500 million and a term of around 60 years. We have the right to redeem the bond with a starting coupon of 1.125% for the first time in a three month period before 5 November 2024 and it can then be redeemed early at every coupon date. The bond with a starting coupon of 1.625% can be redeemed for the first time in a three month period before 5 August 2027. It can then be redeemed early at every coupon date. The bonds are junior to all other financial liabilities but have an equal ranking to our existing hybrid bonds.

The green bonds contribute to selected sustainability goals of the United Nations (United Nations Sustainable Development Goals (SDGs)). The business activities and projects of EnBW focus, in particular, on the following four SDGs: SDG 7 (affordable and clean energy), SDG 9 (industry, innovation and infrastructure), SDG 11 (sustainable cities and communities) and SDG 13 (climate action). The green bonds also support our non-financial key performance indicators. Further information on our green bonds and the Impact Report can be found at www.enbw.com/green-bond.

Asset liability management model
We ensure the timely coverage of the pension and nuclear obligations using our asset liability management model (Glossary, from p. 139).

The aim is to cover the Group's pension and nuclear provisions within an economically feasible period of time by means of appropriate financial assets. We ensure this using our cash flow-based asset liability management model. For this purpose, we determine the effects on the cash flow statement, income statement and balance sheet over the next 30 years. Alongside the anticipated return on financial assets, the actuarial reports on pension provisions and sector-specific appraisals by external experts on costs for nuclear decommissioning and disposal are taken into account. The aim of this model is to limit the impact of payments for the pension and nuclear obligations on the operating business to €300 million a year (plus an inflation supplement) by taking funds from the financial assets.

If the provisions are fully covered by the financial assets, no further funds will be taken from the cash flow from operating activities as part of the model.

This model also allows simulations of various alternative scenarios. As of 31 December 2019, the dedicated financial assets (Glossary, from p. 139) for pension and nuclear provisions totalled €6,328.7 million (previous year: €6,279.8 million). Alongside the dedicated financial assets, there are plan assets to cover certain pension obligations with a market value of €974.3 million as of 31 December 2019 (previous year: €987.8 million).

We strive to reach the defined investment targets with minimum risk. We also further optimised the risk/return profile of the financial assets in 2019. The main part of the dedicated financial assets is distributed as investments across nine asset classes. The financial assets are bundled in two master funds with the following investment targets:

- Risk-optimised investments, with a performance in line with market trends
- Consideration of the effects on the balance sheet and income statement
- Broad diversification of the asset classes
- Reduction of costs and simplification of administrative processes

Net debt
As of 31 December 2019, net debt increased significantly by €3,265.8 million compared to the figure posted at the end of 2018. This increase was due to the acquisition of the two companies Valeo and Plusnet as well as their subsidiaries. In addition, net debt increased due to the issuing of two green hybrid bonds with a total volume of €1 billion and the first-time application of the leasing standard IFRS 16 in the 2019 financial year.

The decrease in the interest rate for pension provisions from 1.8% to 1.1% and the interest rate for nuclear provisions from 0.6% to 0.03% also resulted in an increase in net debt.

The coverage ratio (Glossary, from p. 139) describes the dedicated financial assets (Glossary, from p. 139) in relation to the net pension and nuclear obligations. As of 31 December 2019, this ratio stood at 48.1%, which was around the same level as in the previous year (51.8%). Within the scope of the ALM model (Glossary, from p. 139), EnBW is still in a position to cover its future cash outflows for pension and nuclear provisions without excessively burdening the cash flow from operating activities.

Net debt

in € million	31/12/2019	31/12/2018	Change in %
Cash and cash equivalents available to the operating business	-1,127.7	-1,954.0	-42.3
Current financial assets available to the operating business	-139.7	-200.6	-30.4
Bonds	3,702.7	4,869.4	17.1
Liabilities to banks	2,021.7	1,482.8	36.3
Other financial liabilities	466.6	644.0	-27.6
Lease liabilities	699.6	0.0	–
Valuation effects from interest-induced hedging transactions	-85.4	-88.8	-3.8
Restatement of 50% of the nominal amount of the hybrid bonds[1]	-1,496.3	-996.3	50.2
Other	-19.7	-18.1	8.8
Net financial debt	**6,021.6**	**3,738.4**	**61.1**
Provisions for pensions and similar obligations[2]	7,655.3	6,550.9	16.9
Provisions relating to nuclear power	5,864.6	5,848.2	0.3
Liabilities relating to nuclear power	0.0	63.3	-100.0
Receivables relating to nuclear obligations	-380.4	-334.4	7.8
Net pension and nuclear obligations	**13,159.5**	**12,128.0**	**8.5**
Long-term securities and loans to cover the pension and nuclear obligations[3]	-5,517.7	-4,864.4	13.4
Cash and cash equivalents to cover the pension and nuclear obligations	-236.1	-295.4	-20.1
Current financial assets to cover the pension and nuclear obligations	-799.4	-569.1	-47.4
Surplus cover from benefit entitlements	-251.5	-208.8	-20.5
Long-term securities to cover the pension and nuclear obligations directly associated with assets classified as held for sale	0.0	-298.9	-100.0
Other	-24.0	-43.2	-44.4
Dedicated financial assets	**-6,328.7**	**-6,279.8**	**0.8**
Net debt relating to pension and nuclear obligations	**6,830.8**	**5,848.2**	**16.8**
Net debt	**12,852.4**	**9,586.6**	**34.1**

1 The structural characteristics of our hybrid bonds meet the criteria for half of the hybrid bonds to be classified as equity, and half as debt, by the rating agencies Moody's and Standard & Poor's.
2 Less the market value of the plan assets (excluding the surplus cover from benefit entitlements) of €974.3 million (31/12/2018: €987.8 million)
3 Includes equity investments held as financial assets.

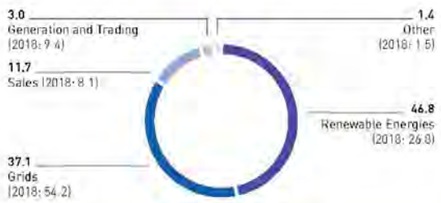
Investment analysis

Net cash investment

in € million[1,2]	2019	2018	Change in %
Investments in growth projects[3]	2,807.3	1,340.4	109.4
Investments in existing projects	507.9	446.0	13.9
Total investments	**3,315.2**	**1,786.4**	**85.6**
Divestitures[4]	-471.3	-371.3	26.9
Participation models	-74.2	51.9	–
Disposals of long-term loans	-0.7	-3.6	-80.6
Other disposals and subsidies	-140.5	-163.4	-14.0
Total divestitures	**-686.7**	**-486.4**	**41.2**
Net (cash) investment	**2,628.5**	**1,300.0**	**102.2**

1 The figures for the previous year have been restated.
2 Excluding investments held as financial assets.
3 Does not include cash and cash equivalents acquired with the acquisition of fully consolidated companies. These amounted to €77.6 million in the reporting period (previous year: €0.4 million).
4 Does not include cash and cash equivalents relinquished with the sale of fully consolidated companies. These amounted to €40.2 million in the reporting period (previous year: €61.5 million).

Investment by segment[1]
in %



1 The figures for the previous year have been restated.

Investment by the EnBW Group in 2019 was significantly higher than in the previous year. This increase is mainly due to the investments in Valeco and Plusnet in the second quarter of 2019. Around 84.7% of overall gross investment was attributable to growth projects; the proportion of investment in existing facilities stood at 15.3%.

Investment in the **Sales** segment of €389.4 million was significantly higher than the level in the previous year (restated: €144.2 million) due to the acquisition of Plusnet.

Investment in the **Grids** segment stood at €1,230.9 million, compared to €967.7 million (restated) in the previous year. It was primarily used for the expansion of the electricity grids in both years. The increase in 2019 compared to the previous year is primarily attributable to the expansion of the transmission grid by our Group subsidiaries TransnetBW and ONTRAS Gastransport, the expansion and renovation of the distribution grid and investment in the area of electromobility.

Investment in the **Renewable Energies** segment of €1,552.6 million was considerably higher than the figure in the previous year (restated: €478.8 million). The main reasons for this were the acquisition of Valeco and the construction of the EnBW Hohe See and EnBW Albatros offshore wind farms.

Investment in the **Generation and Trading segment** fell significantly in 2019 in comparison to the previous year to €98.3 million. In the previous year, investment stood at €168.0 million (restated) and was mainly attributable to the exploration and production business of VNG and the modernisation of the combined gas heat and power plant in Stuttgart-Gaisburg.

Other investments in 2019 of €44.0 million were above the level in the previous year (restated: €27.7 million).

Divestitures increased in comparison to the level in the previous year; this increase was primarily due to the sale of the remaining shares in EWE, the sale of the shares in EMB Energie Mark Brandenburg and VNG Slovakia, and divestitures from participation models. Shares were sold in the Buchholz III and Aalen-Waldhausen wind farms.

Investment obligations for the acquisition of intangible assets and property, plant and equipment amounted to €1,213.8 million as of 31 December 2019 (previous year: €1,142.7 million). Commitments from corporate acquisitions totalled €535.5 million (previous year: €476.1 million).

Investment decisions will take climate goals into account to a greater extent in the future. In this context, the investment guidelines were adapted in the 2018 financial year: For significant investment projects, their influence on the environmental and climate protection targets and figures – in the sense of the TCFD recommendations (Glossary, from p. 139) – will be illustrated in the future. This additional information will provide a basis for the approval by the investment committee of the Board of Management.

Liquidity analysis

Condensed cash flow statement

in € million	2019	2018	Change in %
Cash flow from operating activities	707.0	827.6	-14.6
Cash flow from investing activities	-2,317.1	-895.8	–
Cash flow from financing activities	551.9	-907.3	–
Net change in cash and cash equivalents	**-1,058.2**	**-975.5**	**-8.5**
Change in cash and cash equivalents due to changes in the consolidated companies	169.3	6.6	–
Net foreign exchange difference	3.1	5.5	-43.6
Change in cash and cash equivalents due to risk provisions	0.2	0.2	0.0
Change in cash and cash equivalents	**-885.6**	**-963.2**	**8.1**

The reduction in cash flow from operating activities in comparison to the previous year was mainly caused by the increase in the net balance of assets and liabilities from operating activities as well as by higher income tax payments in comparison to the previous year.

Cash flow from investing activities returned a significantly higher outflow of cash in the reporting period compared to the previous year. This was due, in particular, to the acquisitions of Valeco and Plusnet and payments associated with the construction of the EnBW Hohe See offshore wind farm, which has since been fully consolidated.

Cash flow from financing activities returned a cash inflow in the reporting period, which was mainly due to the issuing of two green hybrid bonds, a bond as part of the Debt Issuance Programme (Glossary, from p. 139) and short-term loans. This was offset to some extent by the repayment to the commercial paper programme (Glossary, from p. 139) and repayments for short-term loans from the previous year. The outflow of cash in the previous year was mainly attributable to planned repayments on two bonds and the simultaneous issuing of the green bond (Glossary, from p. 139) as well as the utilisation of the commercial paper programme.

The solvency of the EnBW Group was ensured at all times throughout the 2019 financial year thanks to the company's available liquidity and its internal financing capability, as well as external sources available for financing. The company's future solvency is secured by its solid financial position (p. 72 ff.).

Retained cash flow

in € million	2019	2018	Change in %
EBITDA	**2,245.2**	**2,089.6**	**7.4**
Changes in provisions	-416.0	-394.6	5.4
Non-cash-relevant expenses/income	46.3	-116.0	–
Income tax paid	-409.1	-270.7	51.1
Interest and dividends received	286.5	284.6	0.7
Interest paid for financing activities	-214.9	-247.0	-13.0
Dedicated financial assets contribution	19.2	-34.0	–
Funds from operations (FFO)	**1,557.2**	**1,311.9**	**18.7**
Dividends paid	-316.5	-312.8	1.2
Retained cash flow	**1,240.7**	**999.1**	**24.2**

Funds from operations (FFO) increased compared to the previous year, which was due primarily to an increase in the cash-relevant EBITDA. A positive dedicated financial assets contribution and lower interest payments in the reporting period also contributed to the increase. This was offset to some extent by higher income tax payments in the reporting period. The increased FFO led to an increase in the retained cash flow. The retained cash flow reflects our internal financing capability after all stakeholder needs have been settled. It is available to the company for investment without the need to raise additional debt.

Internal financing capability

	2019	2018	Change in %
Adjusted retained cash flow in € million[2]	1,485.7	1,199.1	23.9
Adjusted net (cash) investment in € million[3]	1,797.9	1,300.0	38.3
Internal financing capability in %	**82.6**	**92.2**	–

1 The figures for the previous year have been restated.
2 Adjusted for the effects from the reimbursement of the nuclear fuel rod tax of €245.0 million (previous year: €200.0 million).
3 Adjusted for accelerated growth investment of €630.6 million (previous year: €0.0 million).

We have translated the retained cash flow into the adjusted retained cash flow, in order to take the adjustment due to the reimbursement of the nuclear fuel rod tax (Glossary, from p. 139) into account. This resulted in an increase of €685.0 million in the period from 2018 to 2020 (nuclear fuel rod tax adjusted for debt repayment). The remaining amount will be distributed on a straight-line basis in 2019 and 2020. The reimbursement of the nuclear fuel rod tax of €1,520.8 million in the 2017 financial year was used by EnBW for the debt repayment in 2018 of €835.8 million and for investments of €200.0 million, as well as for investments of €245.0 million in 2019.

We have adjusted the net (cash) investment to take account of the accelerated growth investment in Valeco and Plusnet, which will contribute to the EnBW 2025 growth strategy.

As there was a sharp rise in adjusted net investment compared to the previous year in combination with a less sharp increase in the adjusted retained cash flow, the internal financing capability fell. Although the adjusted retained cash flow exceeded the forecasted range of €1.3 billion to €1.4 billion in the reporting period, we just missed the target for internal financing capability of ≥ 85% in 2019.

Net assets

Condensed balance sheet

in € million	31/12/2019	31/12/2018	Change in %
Non-current assets	31,622.5	26,746.0	18.2
of which intangible assets	(3,347.4)	(1,748.7)	91.4
of which property, plant and equipment	(18,552.7)	(15,867.5)	16.9
of which entities accounted for using the equity method	(1,064.0)	(1,600.2)	-33.5
of which other financial assets	(6,356.9)	(5,426.5)	17.1
of which deferred taxes	(1,214.0)	(1,059.3)	14.6
Current assets	11,664.7	12,520.7	-6.8
Assets held for sale	0.9	342.3	-99.7
Assets	**43,288.1**	**39,609.0**	**9.3**
Equity	7,445.1	6,273.3	18.7
Non-current liabilities	24,739.7	22,036.9	12.3
of which provisions	(14,333.1)	(13,246.0)	8.2
of which deferred taxes	(890.0)	(774.8)	14.9
of which financial liabilities	(7,360.7)	(6,341.4)	16.1
Current liabilities	11,103.3	11,277.6	-1.5
of which provisions	(1,535.9)	(1,549.9)	-0.9
of which financial liabilities	(830.2)	(654.8)	26.8
Liabilities directly associated with assets classified as held for sale	0.0	21.2	-100.0
Equity and liabilities	**43,288.1**	**39,609.0**	**9.3**

As of 31 December 2019, the total assets were higher than the level at the end of the previous year. Non-current assets increased by €4,876.5 million. The main reasons for this were the full consolidation of EnBW Hohe See and the first-time consolidation of Valeco and Plusnet. In addition, property, plant and equipment increased due to the first-time application of the leasing standard IFRS 16 in the 2019 financial year. The increase in financial assets was due to the securities. The decrease for entities accounted for using the equity method was primarily caused by the full consolidation of EnBW Hohe See since October 2019. Current assets fell by €856.0 million; this was mainly attributable to the payment of the purchase prices for Valeco and Plusnet. Lower trade receivables due to volume and price effects and a decrease in the current financial assets in the area of securities were more than compensated for by the change in derivatives (Glossary, from p. 139). The decrease in assets held for sale was primarily the result of EWE-Verband exercising its right to buy the 6% of the shares in EWE that were previously held by EnBW. The contractually agreed sale of shares in Stuttgart Netze Betrieb, which resulted in a loss of control of the company, also had an effect.

The equity increased by €1,171.8 million as of the reporting date of 31 December 2019. The main reasons for this development were the increase in non-controlling interests due to the first-time full consolidation of EnBW Hohe See and an increase in revenue reserves. This was offset by the increase in losses in other comprehensive income, which was mainly caused by the fall in the discount rate for the pension provisions from 1.8% at the end of 2018 to 1.1% as of the reporting date. The equity ratio increased from 15.8% at the end of 2018 to 17.2% on the reporting date. Non-current liabilities increased by €2,702.8 million. This was attributable, on the one hand, to the increase in the pension provisions because of the fall in the discount rate as well as the increase in financial liabilities due to the issuing of two green hybrid bonds with a total volume of €1 billion, while on the other hand, there was an increase in other liabilities and subsidies because of the first-time application of IFRS 16 in the 2019 financial year. The decrease in liabilities directly associated with assets held for sale was the result of the sale of shares in Stuttgart Netze Betrieb.

Other financial indicators

NEW ROCE and value added

The cost of capital before tax represents the minimum return on average capital employed (calculated on the basis of the respective quarterly figures for the reporting year and the year-end figure for the previous year). Positive value is added when the return on capital employed (ROCE) exceeds the cost of capital. The cost of capital is determined based on the weighted average cost of equity and debt together. The value of equity is based here on a market valuation and thus deviates from the value recognised in the balance sheet. The cost of equity is based on the return of a risk-free investment and a company-specific risk premium. The latter is calculated as the difference between a risk-free investment and the return for the overall market, weighted with a company-specific business field risk. The terms according to which the EnBW Group can raise long-term debt are used to determine the cost of debt.

Value added for 2019 by segment

	Sales	Grids	Renewable Energies	Generation and Trading	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result[1] in € million	174.0	839.7	267.1	-178.0	-91.2	1,011.6
Average capital employed in € million	1,308.8	8,033.3	4,840.6	2,044.0	3,088.4	19,315.1
ROCE in %	**13.3**	**10.5**	**5.5**	**-8.7**	–	5.2
Weighted average cost of capital before tax in %	7.6	4.2	5.3	7.8	–	5.2
Value added in € million	**74.6**	**506.1**	**9.7**	**-337.3**	–	0.0

1 Investment result of €47.2 million, adjusted for taxes (investment result/0.706 = investment result; with 0.706 = 1 – tax rate 29.4%). Does not include impairment losses and reversals to impairment losses on investments, the result from the sale of equity investments, the share of the result from entities accounted for using the equity method not relevant to the ongoing management of the company and the result from equity investments held as financial assets.

Value added for 2018 by segment[1]

	Sales	Grids	Renewable Energies	Generation and Trading	Other/ Consolidation	Total
Adjusted EBIT including the adjusted investment result[2] in € million	218.0	768.4	123.7	-21.9	-46.6	1,041.6
Average capital employed in € million	1,067.1	7,019.8	3,667.4	2,109.0	2,190.0	16,053.3
ROCE in %	**20.4**	**10.9**	**3.4**	**-1.0**	–	6.5
Weighted average cost of capital before tax in %	7.7	5.3	6.1	8.0	–	6.3
Value added in € million	**135.5**	**393.1**	**-99.0**	**-189.8**	–	32.1

1 The figures for the previous year have been restated.
2 Investment result of €59.4 million, adjusted for taxes (investment result/0.706 = investment result; with 0.706 = 1 – tax rate 29.4%). Does not include impairment losses and reversals to impairment losses on investments, the result from the sale of equity investments, the share of the result from entities accounted for using the equity method not relevant to the ongoing management of the company and the result from equity investments held as financial assets.

There are various factors that influence value added. The level of ROCE and value added depend not only on the development of the operating result but above all on the capital employed. Large-scale investments tend to significantly increase the capital employed in the early years, while the effect on income that boosts value, however, only filters through over a lengthier period of time, often long after the investments were initially made. This is especially true of capital expenditure on property, plant and equipment relating to the construction of new power plants, which do not have any positive effect on the operating result of the Group until after they are commissioned. Capital expenditure on power plants, on the other hand, is already taken into account in the capital employed during the construction phase. In a comparison of individual years, the development of ROCE and value added is, to a certain extent, cyclical in nature, depending on the investment volume. This effect is therefore inherent in the system and results in lower ROCE in phases of strong growth or phases of investment.

In the 2019 financial year, value added fell in comparison to the previous year by €32.1 million to €0.0 million. The adjusted EBIT including the adjusted investment result fell, while the average capital employed rose. The risk-adjusted weighted average cost of capital was below the level in the previous year at 5.2%. The ROCE of 5.2% was below our forecasted range for the 2019 financial year (forecast 2019: 6.0% to 7.0%).

Sales: Value added in the Sales segment decreased in 2019 by €60.9 million. This was attributable to the increase in the average capital employed, which was primarily due to the first-time consolidation of Plusnet on 30 June 2019. In addition, the lower adjusted EBIT including the adjusted investment result contributed to the fall in value added.

Grids: Value added in the Grids segment increased by €113.0 million in comparison to 2018. Both the adjusted EBIT including the adjusted investment result and also the capital employed were above the figures in the previous year. The increase in capital employed was primarily attributable to the investment in the transmission and distribution grids and also the first-time application of the leasing standard IFRS 16.

Renewable Energies: Value added in the Renewable Energies segment of €9.7 million was higher than the value in the previous year. The adjusted EBIT including the adjusted investment result increased to €267.1 million. The capital base grew due to the construction of the EnBW Hohe See offshore wind farm and its revaluation as part of its full consolidation, as well as due to the acquisition of Valeco.

Generation and Trading: Value added in the Generation and Trading segment of €-337.3 million was below the level in 2018. This was caused by the decrease in adjusted EBIT including the adjusted investment result. The average capital employed in the reporting year remained at approximately the same level as in the previous year.

Performance indicators relevant to remuneration

The performance indicators relevant to remuneration are derived as follows. The remuneration of the members of the Board of Management is described in full in the remuneration report (p. 110 ff.).

EBT relevant to remuneration

in € million	2019	2018
EBT	902.2	596.3
Less outstanding items for derivatives allocated under trading within EBITDA	2.7	–4.1
Less the measurement of financial assets and outstanding items for derivatives allocated under trading within the financial result	–323.7	38.8
Less changes to the inflation rate and discount rate for nuclear provisions	475.3	133.3
EBT relevant to remuneration according to the new regulations[1]	1,056.5	**764.3**

1 The EBT relevant to remuneration was above the forecast of €950 million to €990 million due primarily to the revaluation of the shares in EnBW Hohe See.

Funds from operations (FFO) relevant to remuneration

in € million	2019	2018
Funds from operations (FFO)	1,557.2	1,311.9
Less income tax paid	409.1	270.7
Funds from operations (FFO) relevant to remuneration	1,966.3	**1,582.6**

Intangible assets and property, plant and equipment (net) relevant to remuneration

in € million	2019	2018
Intangible assets	3,347.4	1,748.7
Property, plant and equipment	18,652.7	15,867.5
Investment properties	30.3	31.6
Investment cost subsidies	–6.7	–7.7
Construction cost subsidies	–901.6	–876.8
Intangible assets and property, plant and equipment (net)	21,022.1	**16,763.3**
Average intangible assets and property, plant and equipment (net)[1]	18,327.1	**16,371.6**

1 Average calculation based on the relevant quarterly values for the reporting year and the year-end value for the previous year.

ROA (return on assets) relevant to remuneration

in € million	2019	2018
EBIT	596.7	875.8
Less outstanding items for derivatives allocated under trading within EBITDA	2.7	–4.1
EBIT relevant to remuneration	599.4	**871.7**
Less changes to the inflation rate and discount rate for nuclear provisions	297.8	–
EBIT relevant to remuneration according to the new regulations	897.2	**871.7**
Average intangible assets and property, plant and equipment (net)	18,327.1	16,371.6
ROA (return on assets) relevant to remuneration in %	4.9	**5.3**

Customers and society goal dimension

Reputation

A strong reputation is an important factor for the sustainable success of a company. The good social reputation of a company reflects the trust placed by the general public and relevant stakeholders in the competent and responsible actions of a company.

We assume our responsibilities for the economy and society and aspire to be a driver of the Energiewende. In the process, we want to gain social acceptance and improve our reputation. A good reputation signals the willingness of society and its different stakeholder groups to cooperate with and invest in the company.

We aim to continuously improve our reputation. The focal point of this concept is the stakeholder team, which was set up on the initiative of the Board of Management in 2017. It consists of representatives from all important areas of the company. The stakeholder team communicates and maintains dialogue with relevant stakeholder groups both directly and indirectly.

Reputation Index

Reputation is measured by means of the key performance indicator Reputation Index using a standardised survey that is carried out by an external market research institute. It is measured in accordance with the requirements of the EnBW Group standard for market research and surveys (p. 45).

Key performance indicator

	2019	2018	Change in %	Forecast 2019
Reputation Index	52.8	51.3	2.9	54.1

Our Reputation Index increased to 52.8 index points in the reporting year. The most positive changes in comparison to the previous year were in the B2C target group – customers and the wider public. The EnBW image campaign in autumn 2019 was another positive development that strengthened above all the aspect of sympathy. However, we were unable to achieve the target value for 2019 of 54.1 points. The values for comparable large companies, whose reputation index was below our value, did not improve as strongly as our reputation. In other words: We were able to improve our relative position with respect to comparable large companies. The reputation values for municipal utilities and regional suppliers generally lie significantly higher than the values for EnBW and comparable large companies. More details on reputational risks can be found in the "Report on opportunities and risks" on p. 103.

Customer proximity

We aim to become a sustainable and innovative provider of infrastructure. A sustainable contribution could be made, for example, in the form of cooperative partnership models with local authorities, municipal utilities and suppliers. Our company also has great opportunities for generating additional revenue and for acquiring new customers using digital services and solutions.

An important step in this direction was the introduction of the new IT and process landscape for sales called **EnPower**. After it was introduced at Yello in the previous year, the EnBW brand also switched over to the new system in the middle of July 2019. On the one hand, EnPower facilitates better interaction between customers and the brands, while on the other hand, it lays the foundations for the digitalisation, automation and streamlining of settlement processes for the supply of electricity.

In parallel to the introduction of EnPower, the website www.enbw.com was also updated and given an even more customer-oriented design. The focus was placed on creating a user-friendly interface, ensuring clear navigation and providing information that is particularly relevant to customers.

Customer Satisfaction Index

The energy sector is helping to push forward major social changes. The new energy world offers us great opportunities that we want to exploit and the main point of focus is our customers. We strive to maintain **long-term customer relationships** by offering networked products and new product combinations, continuous open communication and the best possible quality of service. Customer loyalty is based on high customer satisfaction, which is measured in accordance with the requirements of the EnBW Group standard for market research and surveys. The Customer Satisfaction Indices for EnBW and Yello are compiled from customer surveys carried out by an external provider (p. 45).

Key performance indicator

	2019	2018	Change in %	Forecast 2019
Customer Satisfaction Index for EnBW/Yello	116/157	120/152	–3.3/3.3	114–141/ 148–159

The satisfaction of the customers of EnBW fell slightly in 2019 but still reached a good level at 116 points – and was thus also within our forecasted range for 2019 of 114 to 141 points. A good level is reached when half of those surveyed indicate that overall they are particularly satisfied with EnBW. This is the case from 114 points upwards. A very good level of satisfaction is achieved from 136 points upwards. A possible cause for the slight decrease in the Customer Satisfaction Index for EnBW was, on the one hand, a price adjustment applied at the turn of the year 2018/2019 for the majority of those customers surveyed, while on the other hand, the switch over to the new EnPower platform had temporary effects on the service process and could also have had an impact on customer satisfaction.

The satisfaction of Yello customers remained at a high level (157) in 2019 and was thus at the higher end of our forecast (148–159). In comparison to the previous year, the value increased from 152 to 157. We believe that this high value could, amongst other things, be due to the diverse range of products for the Yello Plus tariff and a larger proportion of kWhapp users. kWhapp is an energy check app that helps users check their consumption regularly and adjust their advance payments at an early stage in the event of any changes.

Selected activities

Following the successful switchover of the system and process landscape in 2018, Yello benefited from new functionalities that increased its competitiveness in 2019. For example, products and services can be brought to the market more quickly and customers can be addressed individually. In October 2019, the **Digital Service Centre** also went online. It is a central digital contact point for customers and other interested parties. It combines content, services, contact options and answers to frequently asked questions.

With the continuation of our **corporate campaign,** we are demonstrating – under the revised slogan of "We're making E happen" – that electromobility is not just a future theme for the company but has already been part of our everyday lives and those of our customers for a long time. The campaign illustrates this with facts and information on the services provided by EnBW in the area of e-mobility. The aim of the campaign is to improve our reputation and prominence as a leading provider of e-mobility solutions, as well as for being a company that is making the Energiewende happen.

A main focus of the activities in the goal dimension "Customer proximity" in 2019 was **electromobility.** As a full-service provider together with our subsidiaries, our company covers the complete spectrum of services for the development and expansion of electromobility from the supply of electricity and the operation of a comprehensive charging infrastructure (Glossary, from p. 139) through to digital services for the consumer. In particular, the main focus was placed in 2019 on the comprehensive expansion of quick-charging stations. We were the largest operator of quick-charging infrastructure in Germany at the end of 2019 with around 290 quick-charging stations and we plan to operate up to 1,000 quick-charging stations across the country by the end of 2020. In addition, we offer drivers of electric cars access to more than 35,000 charging points in Germany, Austria and Switzerland via the EnBW mobility+ app. Following the introduction of the purely kWh-based EnBW mobility+ tariff, customers can use the app to pay for the electricity used to charge their e-cars at these charging points very easily and transparently. Yello also introduced e-mobility services in 2019. Anyone who is interested can, for example, rent a selection of vehicle models and test them under everyday conditions. In the yubee electromobility app, customers can use a driving simulator to find out whether an e-car would suit them at all and if so, which one would suit them best.

In the **SAFE project** (core charging network for e-cars in Baden-Württemberg), which was funded by the State of Baden-Württemberg, 77 municipal utilities and suppliers as well as three local authorities worked together with us to develop a core charging network (Glossary, from p. 139) in Baden-Württemberg. We coordinated the project as the head of the consortium. Following the conclusion of the funded project at the end of September 2019, Baden-Württemberg now has a comprehensive charging and quick-charging network for electric vehicles.

EnBW Telekommunikation GmbH is responsible for the main **telecommunications activities** of EnBW AG. As of 1 April 2019, it acquired around 55% of the shares in **NetCom BW** from Netze BW. NetCom BW has a strong market position with a focus on Baden-Württemberg. In order to expand our business in the telecommunications market across Germany, we acquired the company **Plusnet** on 30 June 2019. The company is active across the whole of Germany and has around 25,000 business customers.

The EnBW subsidiary **Senec** based in Leipzig is a specialist in equipping customers so that they are able to meet their own energy needs with solar electricity. According to a survey conducted by the market research company EuPD Research, the company was able to increase its market share on the German home electricity storage market from 9% to 14% in the first half of 2019. In the reporting year, Senec more than doubled its sales of electricity storage systems from 4,800 to 10,000 systems.

Our **contracting department** offers solutions to customers from industry, the real estate sector and local authorities for their on-site energy infrastructure. Depending on the customer's requirements, it provides, for example, heating, steam, cooling or compressed air as well as electricity from combined heat and power blocks based on long-term contracting agreements. We thus support our customers not only with modern energy infrastructure but also in the achievement of their targets with respect to supply reliability, energy and cost savings and CO_2 reductions. We can also help them make use of funding opportunities. These approaches were also used, for example, for three contracting projects that were concluded with local authorities in 2019.

Our company views itself as an experienced and powerful **partner for local authorities and public utilities.** Via our concessions in the electricity and gas sectors and numerous local authority holding companies in which we are active as a shareholder, we have extensive and strong connections throughout Baden-Württemberg. Alongside electricity and gas, other areas of cooperation in 2019 included the water and broadband networks (Glossary, from p. 139), the development of district projects (Glossary, from p. 139), the integration of charging infrastructure (Glossary, from p. 139) into local authority mobility concepts and assisting local authorities with their digital agendas.

In July 2019, we started a participation model for cities and communities in Baden-Württemberg called **"EnBW connects".** Around 550 local authorities can acquire shares in Netze BW. The prerequisite for taking part is that Netze BW must be the owner and also operator of the local electricity and/or gas distribution grid in the local authority as of 1 July 2019. We aim to further expand our role as a partner for cities and communities in Baden-Württemberg using this model.

Supply reliability

As an energy company and distribution grid operator, we are tasked with guaranteeing a reliable supply of electricity to our customers. The fact that the energy is increasingly being generated decentrally is a real challenge for the supply of electricity. This means that the electricity is being fed into our grid at many different points. In addition, the feed-in of energy from renewable sources fluctuates because it is dependent on the weather and other factors that are outside of our sphere of influence. We have set ourselves the goal of preparing our transmission grids so that they can handle this decentralised energy world. To this end, we are adding so-called smart grid technologies (Glossary, from p. 139) to the existing conventional infrastructure. This will enable us to better manage the generation, distribution and storage of the energy.

Our grid companies are responsible for the safe and reliable operation of the transmission grids. Processes are managed by these companies at their grid control centres. These are also responsible for resolving any unplanned outages in the respective region. As part of the investment and maintenance programmes, we maintain the grids and expand them according to demand. Depending on its volume, the investment must be approved by the Board of Management, along with the overall annual budget for the realisation of all investment and maintenance measures. The measures are carried out over one or multiple years and are realised independently by our grid companies. Some of the investment budget is used for the gradual expansion of smart grids. The increasing use of smart grid technology (Glossary, from p. 139) enables us to avoid or delay expensive investment in conventional grids. Besides the reliability and security of supply, the efficiency of the measures is also taken into account when making investment decisions. This is because grid investment also has an influence on the grid charges that make up part of the electricity price paid by customers.

NON SAIDI

We record all unscheduled interruptions to supply at our distribution grid operators. This data flows into the "System Average Interruption Duration Index" (SAIDI) for electricity. It states the average duration of supply interruptions per connected customer in minutes per year (p. 45).

Key performance indicator

	2019	2018	Change in %	Forecast 2019
SAIDI (electricity) in min./year	15	17	–11.8	15–20

A better value for SAIDI was achieved in 2019 in comparison to previous years and it thus stood encouragingly at the lower end of the forecasted range. This was due to the fact that all of our grid subsidiaries were able to reduce the average length of the interruptions to supply in 2019.

Employees goal dimension

Employees are responsible for the business development of EnBW and shape the future of our company. Therefore, the key tasks of HR are recruiting employees for the company, including the promotion of young talent, encouraging loyalty to the company amongst employees and maintaining and fostering their motivation, satisfaction and employability. As part of the EnBW 2020 strategy, we believe that the value drivers for our HR policy can be found in the following areas of focus: leadership, safeguarding and promoting expertise, employment conditions and structures, and health management.

The further development of our corporate strategy in the period up to 2025 (p. 42 f.) will place new requirements on our HR policy. In future, the strategic focus will be placed on growth, infrastructure, selective internationalisation and new business also outside of the energy sector. Using a revised HR strategy that is valid from 2020, we want to give the people at EnBW – and at the same time our company – the opportunity for growth, development, a future and thus success.

Employee commitment

NEW Employee Commitment Index (ECI)

The key performance indicator ECI is an important indicator for us as it reflects the degree to which employees identify with the company. The annual measurement of this indicator enables us to respond specifically to any negative trends at an early stage. The key performance indicator ECI is taken into account in the remuneration and corresponding target agreements for the Board of Management (p. 46).

Key performance indicator

	2019	2018	Change in %	Forecast 2019
Employee Commitment Index (ECI)[1]	66	62	6.5	63

1 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs)).

The fifth short survey for monitoring the ECI – MAB-Blitzlicht (Employee Flashlight) – was carried out between 16 September and 4 October 2019. As in the previous year, the MAB-Blitzlicht survey comprised twelve questions and was carried out by taking a random representative sample by an external, independent service provider. As in the full surveys, it collected information on the level of commitment of the employees to the EnBW Group and to their respective company. The already very high level of participation increased for the third year in a row to 74% (2018: 73%). This demonstrates that the employee survey enjoys a consistently high level of acceptance as a tool for providing feedback. The ECI from MAB-Blitzlicht 2019 showed a clear improvement to 66 points. The target set for 2019 was thus far exceeded. In general, commitment improved across all management and employee levels. According to an assessment carried out by our service provider, the ECI level achieved by our company is at a very high level in comparison to other companies in the sector. We believe that this positive development reflects the increasing level of trust in the future viability and competi-

tiveness of our company as well as our attractiveness as an employer overall. Both are decisive factors for retaining high-performing employees and also for acquiring new talent.

Selected activities in the HR areas of focus

Leadership: As part of the **"Next Level Leadership"** initiative, we offer employees with leadership roles the chance to take advantage of learning and development opportunities and provide space for the concrete practical implementation of modern leadership approaches in an increasingly complex and digital environment. In 2019, new teaching content was added into the syllabus for this programme that was launched back in 2018 (including delegating responsibility to a team, leading myself, resilience). A total of more than 1,100 employees and managers have used the different learning and development opportunities since the start of the programme (2019: 829 participants).

The new talent development programme **"SP4RK for Pioneers"**, which was launched in 2019, combines the development of leadership skills with the development of innovative business models. Talent from across the company work for several months in cross-functional teams on projects with a start-up character in order to identify strategically relevant business models. At the same time, they learn methods for developing customer-centric business models and have the opportunity to develop important skills for the future in the context of modern leadership expertise.

A comprehensive cultural and transformation project was launched at **ED** at the beginning of 2019 to develop a common leadership culture and common principles, as well as to strengthen mutual trust. In numerous cross-hierarchical workshops, five leadership principles were developed that will be implemented across the whole ED Group and regularly evaluated in the individual departments.

Safeguarding and promoting expertise: We believe that **diversity** acts as a lever for successfully implementing our strategy. Under the motto "Diversity generates success", we rely on a diverse workforce in terms of numerous different criteria such as gender, age, interculturality, sexual orientation and people with disabilities, as well as sector backgrounds, different working models and work organisation. Strengthening diversity in the composition of the workforce and the leadership team is an important factor for success in many areas of the company. It promotes innovative strength, internationalisation and customer orientation, and thus also the successful implementation of our strategy. In recognition of this diversity, we took part in the Christopher Street Day in Stuttgart for the second time in 2019 with our own float. To promote diversity, we have introduced a process in which specific targets for particularly relevant diversity characteristics in various areas of the company have been agreed together with measures for their implementation. For example, language training courses have been offered to a greater extent to ensure the successful integration of many new employees with an international background. The Diversity Week 2019 was held in June with numerous campaigns and events also focussing on this complex theme.

SWD held a Diversity Day for the second time this year, this time on the theme of "Experience diversity". The main focus on this day was placed on the diversity of the workforce. The aim was to raise awareness for diversity and promote appreciative cooperation without any prejudice.

Proportion of women in management positions at EnBW AG

in %	2019	2018
First level below the Board of Management	0.0	0.0
Second level below the Board of Management	17.2	15.1

The Board of Management has set the goal for EnBW AG of further increasing the proportion of women at both management levels below the Board of Management in the period from 1 January 2017 to 31 December 2020. At both the first level (top management) and second level (upper management), the proportion of women should increase to at least 20%. Despite a great deal of effort, these targets were not yet achieved in 2019.

Another part of the HR policy is promoting young talent. Our company employed 1,014 trainees and students from the Cooperative State University (DH) as of 31 December 2019. This represents an increase of 8.1% compared to the previous year. There are plans to take on 409 new trainees and DH students in 2020. Our goal is to employ all of them after they have successfully completed their training. More than 80% of our trainees and DH students receive the guarantee of a job. In addition, we employed 1,333 working students and interns in 2019, which was 15.5% more than in 2018.

The **EnBW employer brand** was developed further in 2019 in order to achieve a stronger position on the job market and differentiate the company from the competition. Around 500 employees participated in the feedback campaign "Give our employer brand an image" in September 2019. The EnBW employer brand that was developed received a high level of acceptance at almost 90%.

We introduced the new **online application management system** Avature in 2019. It simplifies the process overall for applicants and offers them various different options when making an application, such as the automated scanning of a CV or adding links to social networks. In addition, it will provide better support to our internal processes dealing with the recruitment of new employees.

To recruit employees in growth fields, **PRE** is actively working together with specialist schools and carried out a special recruitment campaign for IT specialists and electrical fitters in 2019. Another main focus was placed on the promotion of young talent by offering, for example, internships and work placements abroad.

Employment conditions and structures: The Employers Association for Electricity Power Plants in Baden-Württemberg and the service trade union ver.di reached a **collective bargaining agreement** with a term of 24 months on 28 February 2019 after intensive negotiations. In accordance with the agreement, remuneration was increased by 2.5% from 1 March 2019 and by a further 1.9% from 1 November 2019. There will be another increase of 1.9% from 1 July 2020. Monthly remuneration for trainees in all year groups increased or will increase on the same dates by €80.00, €50.00 and €50.00, respectively. At EnBW AG and companies that come under the scope of the FOKUS collective bargaining agreement, the increases for trainees are €77.12, €48.20 and €48.20, respectively.

Health management: As part of occupational health and safety management, we offer a variety of preventative medical services for occupational safety and health protection at several sites. In 2019, the focus was placed on issues such as intestinal health. Health campaigns for the early detection of colorectal cancer were run throughout the year. In the area of mental health, a large range of preventative measures were also offered on the themes of stress, conflict situations and psychological disorders.

At **PRE,** the focus of health management is placed on primary prevention. This includes offering company sporting activities and holding sports events and is supplemented by a broad range of social measures. At **VNG,** there is a wide range of preventative services as part of occupational healthcare provision on the themes of heart, circulation, metabolism and musculoskeletal illnesses. Eye and hearing tests, as well as ECG and laboratory testing, are also available.

The sickness ratio of 4.9% was slightly below the figure in the previous year of 5.1%.

Outlook for the HR strategy

The revised HR strategy, which will be valid from 2020, supports the company's EnBW 2025 strategy (p. 42 f.). In defining the future direction of our HR policy, we assume that routine tasks and standardised processes will gradually become less significant due to digitalisation. Human strengths such as creativity, flexibility and curiosity will become more important in the workplace in future and employees will be called upon more strongly as idea generators and progressive thinkers. Our newly designed HR policy will support employees in this process of change, for example by developing new forms and formats for cooperation and opportunities for further training and education. In addition, we want to promote innovative thinking and action and strengthen networking opportunities. We will place a particular emphasis on the potential offered by the internationality and diversity of our employees.

The new HR strategy will focus on six key areas, which will be underpinned by a total of 21 strategic areas:

- HR processes, services & digitalisation
- Employer brand & recruiting
- Leadership and skills
- Qualification@EnBW
- Internationalisation
- Transformation into a modern working world

EnBW has set itself the following goal for its HR policy: We want to make every employee at our company an enthusiastic architect of their own individual development – and thus pivotal shapers of EnBW 2025.

On the basis of this goal, a new **future competence model** for the area of leadership has been designed in cooperation with the Board of Management at EnBW, which will act as a common standard for all people in leadership roles at EnBW – irrespective of their precise role. The central focus will be placed on skills such as customer orientation, entrepreneurship, innovative strength and team empowerment. The new future competence model will be consolidated by our entire leadership team in 2020 and operationalised in all relevant leadership processes.

Other performance indicators

Employees[1]

	31/12/2019	31/12/2018	Change in %
Sales[2]	4,394	3,718	18.2
Grids	9,254	8,920	3.7
Renewable Energies	1,384	1,144	21.0
Generation and Trading[2]	5,499	5,358	2.6
Other	2,762	2,635	4.8
Total	**23,293**	**21,775**	**7.0**
Number of full-time equivalents[3]	21,843	20,379	7.2

1 Number of employees excluding apprentices/trainees and inactive employees.
2 The figures for the previous year have been restated.
3 Converted into full-time equivalents.

As of 31 December 2019, our company had 23,293 employees, which was 7.0% more than at the end of 2018. This increase was primarily due to acquisitions and taking on new employees in strategic growth fields. The number of employees in the Sales segment thus increased due to the first-time consolidation of Plusnet and Senec. In the Grids segment, the increase in the number of employees was due to the growing importance of the regulated business. However, this expansion was offset to some extent by the sale of shares in Stuttgart Netze Betrieb, which resulted in a loss of control of the company. In the Renewable Energies segment, the increase was mainly attributable to the acquisition of Valeco. The increase in the number of employees in the Generation and Trading segment was attributable to restructuring within the Group and an increase in employees in the area of recycling of residual nuclear material. Digitalisation and the transformation of the company led to an increase in the number of employees in the Other segment; this effect was offset to some extent by restructuring measures. The employee turnover ratio stood at 6.3% in 2019 and was thus 0.2 percentage points lower than the figure in the previous year.

Further performance indicators for employees, such as the regional distribution or age structure of our employees, can be found on our website at www.enbw.com/performance-indicators. We also refer you to the details provided in the "Report on opportunities and risks" (p. 103).

Occupational safety

Our main goals in the area of occupational safety are to avoid accidents and work-related illness and to create a safe working environment. Responsibilities, roles and processes are defined in the Group guidelines "Occupational safety and health protection", which also documents the EnBW guidelines for occupational safety and health protection. The Occupational Safety Working Group (AK KAS) has the task of regulating issues that affect all companies uniformly within the Group. AK KAS is headed by the Chief Technical Officer of EnBW and has the power to make binding decisions in accordance with the company's rules of procedure.

New LTIF

The key performance indicator LTIF is used to measure the number of LTI according to the definition on p. 46. Every Group company included in the consolidated companies for the LTIF receives an individual target from the Board of Management on an annual basis – the fulfilment of this LTIF target flows into the monetary assessments for the achievement of targets in each case. The companies can also set their own individual targets that go beyond those set by the Board of Management.

Key performance indicator

	2019	2018	Change in %	Forecast 2019
LTIF for companies controlled by the Group[1]	2.1	2.3	-8.7	<3.7
LTIF overall[2]	3.8	3.6	5.6	–

1 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for companies in the area of waste management as well as external agency workers and contractors).
2 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for external agency workers and contractors).

In 2019, the LTIF for companies controlled by the Group once again improved in comparison to the previous year. The average days of absence per accident at 19.0 fell in comparison to the previous year (22.2). We believe that the significant improvement in occupational safety at EnBW is the result of consistent and effective activities in the area of occupational safety and health protection. The LTIF overall increased slightly in comparison to the previous year. This performance indicator includes subsidiaries in the area of waste management. However, the number of accidents in this area are at a good level in comparison to other companies in the sector.

In the reporting year, there was a fatal accident in relation to loading work.

The measures for achieving targets are independently defined by the Group companies. Various different **activities focussing on occupational safety** were carried out in 2019:

We work continuously on minimising danger in the workplace, which could result in accidents or work-related illnesses, through training and a programme of measures. In the first half of 2019, the focus was placed on the successive roll-out of the EHS software Quentic (formerly called EcoWebDesk, EWD) that had already begun in 2018. Important elements of Quentic are the documentation of risk assessments and hazardous substance management. A uniform hazardous substance register is being gradually collated from various existing sources which have existed for years. The internal audit department carried out an audit on the topic of "Risk assessments of work activities (HSSE)" in the first half of 2019. The audit did not result in any objections. In addition, two workshops for all occupational safety experts on the subject of "Talking about near accidents" were held in the reporting period. At Netze BW, a series of campaigns to further improve the safety culture were carried out in 2019:

- The management systems for occupational safety, environmental protection and energy management were integrated further.
- The grid-wide roll-out of the Quentic database is currently being realised.
- A meeting of the safety officers to discuss the latest issues was held in December 2019.
- To support the theme of health protection, first aid courses were offered to all employees. The target group was those employees who had not yet completed this type of course as part of their work activities.

In the area of conventional and renewable generation, numerous events were held at the power plant sites in 2019. The themes covered included simulator and safety training as well as fire-extinguishing exercises. At the nuclear power plants, more in-depth information was provided about best practice examples and reporting near accidents, and the exchange about experiences with partner companies was intensified in 2019. In addition, the "100 days without accidents" campaign started in 2015 was continued. This is a good tool for motivating employees to act safely.

The main focus at SWD was placed on the following activities:

- Building on the occupational safety and health protection programme 2015plus, a concept for the new programme 2020plus was developed further.
- A concept for dealing with near accidents was implemented in the first pilot areas.
- As part of the "RheinSchiene" project, a meeting of safety officers was held in Düsseldorf in cooperation with the Employer's Liability Insurance Association for the Energy, Textile and Electronics Sectors (BG ETEM).

We also refer you to the details provided in the "Report on opportunities and risks" (p. 104).

Environment goal dimension

Our Group environmental targets – which are integrated into the EnBW 2020 and EnBW 2025 Group strategies – are related to the expansion of renewable energies and to making our contribution to climate protection. These targets are measured using the key performance indicators "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" and CO_2 intensity (Glossary, from p. 139). Alongside EnBW AG, the main subsidiaries that have to deal with environmental issues include SWD and ED. In particular, both subsidiaries and EnBW AG have an environmental management system certified according to DIN EN ISO 14001:2015. This creates the prerequisites for ensuring that environmental requirements are systematically and continuously taken into account. It is used to manage the required guidelines and regulations, define and monitor environmental targets and establish the necessary testing processes. The consistent implementation and further development of the environmental management system ensures that any material negative impacts on the environment can be avoided as well as possible. Risks generally exist in the area of environmental protection due to the operation of power generation plants and transmission facilities and the possible consequences for air, water, soil and nature. We counter these risks using organisational and procedural measures to reduce their impact, as well as with emergency planning and hazard prevention measures.

Expansion of Renewable Energies

Key performance indicator

	2019	2018	Change in %	Forecast 2019
Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	4.4/31.8	3.7/27.9	18.9/–	4.4–4.5/ 31–32

New Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

In the reporting year, the installed output of renewable energies increased to 4.4 GW and was thus within the range of the forecast. This increase was primarily attributable to the commissioning of our EnBW Hohe See offshore wind farm with an output of 497 MW and the onshore wind farms and solar parks added through the acquisition of Valeco. We also constructed 54 MW of output from photovoltaic power plants. Overall, the share of the generation capacity accounted for by RE increased – within the range of our forecast – to 31.8%.

Breakdown of the generation portfolio[1] (as of 31/12)

Electrical output[2,3] in MW	2019	2018
Renewable Energies	**4,398**	**3,738**
Run-of-river power plants	1,006	1,006
Storage/pumped storage power plants using the natural flow of water[4]	1,507	1,507
Onshore wind	826	718
Offshore wind	834	336
Other renewable energies	225	171
Thermal power plants[4]	**9,451**	**9,649**
Brown coal	875	875
Hard coal	3,586	3,491
Gas	1,165	1,458
Other thermal power plants	347	347
Pumped storage power plants that do not use the natural flow of water[4]	545	545
Nuclear power plants[5]	2,933	2,933
Installed output[6]	**13,849**	**13,387**
of which renewable in %	31.8	27.9
of which low CO_2 in %[7]	12.3	15.0

1 The generation portfolio includes long-term procurement agreements and generation from partly owned power plants.
2 The figures for the previous year have been restated.
3 Output values irrespective of marketing channel, for storage generation capacity.
4 Including pumped storage power plants that do not use the natural flow of water.
5 The output from Block 2 of the Philippsburg nuclear power plant is included in the generation portfolio in 2019 because it was not shut down until the evening of 31/12/2019.
6 In addition, power plants with an installed output of 1,706 MW were registered for decommissioning. However, they were classified as system-relevant by the Federal Network Agency and TransnetBW and are thus used by TransnetBW as reserve grid capacity.
7 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

Own generation[1] by primary energy source

in GWh	2019	2018
Renewable Energies	**9,988**	**8,414**
Run-of-river power plants	5,342	4,846
Storage/pumped storage power plants using the natural flow of water	959	1,030
Onshore wind	1,522	996
Offshore wind	1,806	1,233
Other renewable energies	359	309
Thermal power plants[2]	**37,819**	**45,078**
Brown coal	2,598	6,048
Hard coal	8,758	12,868
Gas	3,634	3,518
Other thermal power plants	188	198
Pumped storage power plants that do not use the natural flow of water	1,608	1,790
Nuclear power plants	21,033	20,656
Own generation	**47,807**	**53,492**
of which renewable in %	20.9	15.7
of which low CO_2 in %[3]	11.0	9.9

1 Own electricity generation includes long-term procurement agreements and partly owned power plants.
2 Including pumped storage power plants that do not use the natural flow of water.
3 Excluding renewable energies; only gas power plants and storage power plants that do not use the natural flow of water.

Own generation fell in 2019 compared to the previous year to 47.8 TWh. The main reason for this development was the lower deployment of our thermal power plants because of prices on the market. In contrast, generation based on renewable energies increased significantly, mainly due to the commissioning of our EnBW Hohe See offshore wind farm and the acquired wind turbines in France and Sweden. In addition, the greater volumes of electricity generated due to the better wind conditions and also at the run-of-river power plants due to higher water levels had a positive effect on this development. The proportion of own generation from renewable energy sources thus increased in comparison to 2018 to more than 20%.

Climate protection

Key performance indicator

	2019	2018	Change in %	Forecast 2019
CO_2 intensity in g/kWh	419	553	-24.2	-10% to 0%

Top CO_2 intensity

The CO_2 intensity (Glossary, from p. 139) of own generation of electricity excluding nuclear power fell significantly in comparison to the previous year by 24.2% to 419 g/kWh and was thus appreciably below our forecasted range. This decrease was due, on the one hand, to higher generation from renewable sources in comparison to 2018 and, on the other hand, to the fact that our electricity generation from our fossil fuel-fired power plants fell much more sharply than forecast due to market-driven developments.

Climate neutrality: 2019 was characterised by political and social debate on climate change. In its Green Deal, the EU wants to introduce comprehensive measures and legal obligations for becoming climate neutral by 2050. Therefore, we have closely examined the significance of sustainability and climate protection themes for the business model and aim to support the international and national targets for climate neutral economic activities when developing our future measures and targets.

Our subsidiary ED was one of the first integrated energy companies in Germany and Switzerland to become climate neutral already at the beginning of 2020. For this purpose, ED implemented a comprehensive range of measures over the last few years, such as producing its own green electricity, increasing the energy efficiency of its buildings, reducing the CO_2 emissions from its vehicle fleet and compensating for grid transmission losses using green electricity.

In addition to the key performance indicators in the area of the environment, we utilise a broad range of additional environmental indicators for measuring, controlling and presenting the other results of our environmentally relevant activities. The most important performance indicators are presented in the following table on p. 90. A comprehensive presentation of our environmental performance indicators can be found on the Internet at www.enbw.com/umweltschutz. There is also information available here on our wide-ranging measures to improve energy efficiency, conserve biological diversity and protect nature and species, such as our EnBW amphibian protection programme, or on ecological enhancement measures in the area of our hydroelectric power plants. In addition, further information in conformity with the Global Reporting Initiative (GRI standards) can be found on the Internet.

Carbon footprint: Direct CO_2 emissions are determined mainly by the deployment of power plants. In particular, the sharp decrease in electricity generation from coal in combination with a significant increase in electricity generation from renewable sources led to a corresponding reduction in direct CO_2 emissions from 16.6 to 10.8 million t CO_2eq. Lower indirect CO_2 emissions from grid losses led to a fall in Scope 2 CO_2 emissions from 1.0 to 0.9 million t CO_2eq. Scope 3 CO_2 emissions are mainly influenced by the gas consumption of our customers. The moderate increase in gas sales led to a corresponding rise in Scope 3 emissions from 16.8 to 17.6 million t CO_2eq. The figure for the previous year was restated due to a reclassification within the Generation and Trading segment. Primarily as a result of the increased generation from renewable energy sources, CO_2 emissions avoided rose from 6.9 to 8.3 million t CO_2eq.

Energy consumption: Total final energy consumption includes the consumption of final energy for our business activities. It does not include conversion losses during energy generation or grid losses. Total final energy consumption is mostly influenced by pump energy as well as the company's own consumption requirements and the operating consumption of the power plants. Due to the lower level of own generation overall, the total final energy consumption fell by around 10% in comparison to the previous year from 3,252 GWh to 2,919 GWh.

The proportion of renewable energies in final energy consumption increased from 51% in 2018 to 53% in 2019. This was primarily due to an increase in electricity generation from renewable energies with a correspondingly higher proportion of renewable energies used for the company's own consumption requirements and the operating consumption of the power plants.

The energy consumption of our buildings covers the energy required for heating rooms, providing hot water and electricity. The energy consumption of buildings per employee decreased from 10,482 kWh in 2018 to 9,606 kWh in 2019. This decrease was the result of a diverse range of measures for increasing the energy efficiency of our buildings.

Environmental protection expenditure: We report environmental protection expenditure in line with the requirements of the statistical offices and using the guidelines published by our sector association, BDEW. According to these reporting requirements, investments and current expenditure for the use of renewable energies should be reported in full as expenditure for climate protection. Investment in climate protection increased at an above-average rate from €535 million in the previous year to €1,535 million in 2019. The reasons for this development were the investments associated with the construction of the EnBW Hohe See and EnBW Albatros offshore wind farms and the acquisition of the project developer and operator of wind farms and solar parks Valeco, which are included as expenses for climate protection in accordance with the reporting requirements. The increase in current environmental protection expenses to €301 million (previous year: €268 million) was mainly attributable to higher expenditure in the area of renewable energies.

Mobility: Alongside the expansion of the public charging infrastructure (Glossary, from p. 139) (p. 82), we are also continuously expanding the charging options for electric cars at our sites for our employees. A total of around 580 charging points were thus installed at 65 sites across Germany in 2019. By expanding the charging infrastructure at our sites, we want to make it easier for our employees to switch over to electromobility and thus also push forward the mobility transition internally within the company.

Environmental performance indicators

	Unit	2019	2018
Carbon footprint			
Direct CO_2 emissions (Scope 1)[1]	millions of t CO_2eq	10.8	16.6
Indirect CO_2 emissions (Scope 2)[2]	millions of t CO_2eq	0.9	1.0
Other indirect CO_2 emissions (Scope 3)[2,4]	millions of t CO_2eq	17.6	16.8
CO_2 emissions avoided[5]	millions of t CO_2eq	8.3	6.9
CO_2 intensity of business journeys and travel[6]	g CO_2/km	169	181
Energy consumption			
Total final energy consumption[7]	GWh	2,919	3,252
Proportion of renewable energies in final energy consumption[2,8]	%	53	51
Energy consumption of buildings per employee[9]	kWh/MA	9,606	10,482
Environmental protection expenditure[10]			
Investment in environmental protection	€ million	1,535	535
Current environmental protection expenses	€ million	301	268

1 Preliminary data.
2 Includes greenhouse gas emissions through electricity grid losses and through electricity consumption of plants in the gas and electricity grid, water supplies and buildings.
3 The figures for the previous year have been restated.
4 Includes greenhouse gas emissions through consumption of purchased electricity volumes by customers, consumption of gas by customers, fuel provision, supply chains for gas sales and business travel.
5 Includes CO_2 emissions avoided through the expansion of renewable energies, through energy efficiency projects with customers/partners and through the generation and sale of biogas.
6 Includes all business travel activities (Scope 1 and Scope 3).
7 Includes final energy consumption of production including pump energy, energy consumption of grid facilities (electricity, gas and water) excluding grid losses, energy consumption of buildings and vehicles.
8 For electricity consumption for which the proportion of renewable energies is unknown, a proportion of renewable energies in accordance with the current Bundesmix (federal mix) label for electricity of 35% is assumed. For fuels, a proportion of 5% bioethanol is generally assumed.
9 Calculated partially on the basis of assumptions and estimations.
10 Pursuant to the German Environmental Statistics Act (UStatG) and BDEW guidelines on the recognition of investment and ongoing expenditure relating to environmental protection (April 2007).

Selected activities

Hydropower: Electricity generated from hydropower protects the climate. At the same time, the use of hydropower also encroaches on nature. Therefore, we are committed to harmonising hydropower with ecology. If power plants cause changes to the natural landscape, we compensate for these effects through ecological enhancement measures. For example, we ensure or improve the continuity of watercourses by constructing or optimising fish passes and fish ladders for fish to ascend or descend the river. We are constantly working on new, innovative solutions for ensuring that fish can ascend rivers and for protecting the fish. This can be seen, for example, in our project to enable fish to migrate along the River Murg at the sites in Kirschbaumwasen and Forbach (low-pressure power plant). As the local conditions do not allow the use of traditional solutions for fish to ascend or descend the river, a new type of fish lift is being used. This makes a valuable contribution to achieving the targets in the EU Water Framework Directive for the River Murg, which is classified as a salmon programme waterway. By constructing additional weir turbines at the sites of the fish lifts, we ensure a continuous supply of residual and weir water while generating climate-friendly energy at the same time.

Conservation of biological diversity: We initiated the programme "Stimuli for Diversity" for the protection of amphibian species together with LUBW (Baden-Württemberg State Institute for the Environment) in 2011, which has also included funding for protective measures for reptiles since 2016. The programme is part of the project "The economy and business for nature", which is a component of the state initiative "Active for biological diversity". It still remains the only conservation programme from a company nationwide that not only funds the protection of one single species but two whole groups of species across the state. In the reporting year, nine further projects were realised. More than 110 measures have been implemented in total across Baden-Württemberg since the start of the funding programme, which have successfully improved the living conditions for many endangered species in the state.

EnBW Ostwürttemberg DonauRies has planted a total of 10,600 native deciduous and conifer trees in Ostwürttemberg and the DonauRies region in the last three years. It works together with eight local authorities and the Association for the Protection of German Forests (SDW) on this initiative, which makes a contribution to biodiversity and regional climate protection.

We also refer you to the details provided in the "Report on opportunities and risks" [p. 104].

EnBW AG

The financial statements of EnBW AG have been prepared in accordance with the regulations in the German Commercial Code (HGB), the German Stock Corporation Act (AktG) and the law governing the electricity and gas industries in Germany (German Energy Industry Act – EnWG). The regulations for large corporations apply.

The financial statements as audited by the Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, as well as the management report of EnBW AG contained in the Group management report, will be published in the German Federal Gazette (Bundesanzeiger).

For statements that are necessary to understand the position of EnBW AG and which are not explicitly described in the following sections, especially those relating to the strategy of the company and economic and political conditions, please refer to the information provided for the EnBW Group [p. 41 ff. and 62 ff.]. The full financial statements of EnBW AG are available for download at [www.enbw.com/report2019-downloads].

The annual net profit which indicates the company's ability to pay a dividend is an important performance indicator for EnBW AG.

Results of operations of EnBW AG

Condensed income statement of EnBW AG

in € million[1]	2019	2018	Change in %
Revenue	38,220.6	24,883.1	53.6
Cost of materials	-37,385.9	-24,364.2	-53.5
Amortisation and depreciation	-569.3	-458.1	-24.3
Other operating result	-39.6	-502.6	92.1
Earnings before interest and taxes	225.8	**-441.8**	-
Financial result	-29.3	-73.0	59.9
Tax	84.1	-285.9	-
Annual net profit/loss	280.6	**-800.7**	-

1 In accordance with German commercial law.

EnBW AG reported an annual net profit of €280.6 million. The substantial increase in comparison to the previous year was mainly influenced by €667.6 million higher earnings before interest and taxes and the increase in the tax result of €370.0 million.

The operating result of EnBW AG is primarily determined by the revenues generated from electricity and gas sales, as well as by the associated cost of materials.

In the earnings before interest and taxes, the increase in revenue of €13,337.5 million was offset by an increase in the cost of materials of €13,021.7 million.

The revenue (after the deduction of electricity and energy taxes) of €38,220.6 million primarily includes revenue from electricity sales of €17,345.5 million and gas sales of €19,592.5 million. Electricity and gas sales comprise both the trading business, involving deliveries to trading partners and stock exchanges, and sales activities in the form of the direct delivery of energy to end customers.

As a result of the further expansion in trading activities in 2019, the trading business recorded an increase in revenue of €13,630.5 million to €35,415.2 million. In the gas trading business, the increase in trading volume more than offset lower market prices. In the electricity trading business, the higher trading volume was also positively influenced by increasing prices on the energy markets. The increase in revenue was also offset by the increase in the cost of materials of €13,515.3 million to €34,727.2 million.

Revenues from sales activities were split into €1,668.6 million for electricity and €200.6 million for gas, which represented an overall drop of €35.8 million.

In the retail and end customer sector (B2C), electricity sales of 6.9 billion kWh were at the same level as in the previous year. Gas sales increased in the same period by 0.2 billion kWh to 4.1 billion kWh due to the growing contract portfolio and were thus higher than the previous year. The increase in energy sector costs was passed on to customers in both business segments, which resulted in higher revenues.

The sales to business customers (B2B) includes supplying customers within the Group and redistributing and holding reserve supplies for B2B customers. Sales in the B2B electricity business fell by 0.3 billion kWh to 0.5 billion kWh due primarily to the decrease in sales to redistribution customers. Gas sales to business customers fell in the same period by 0.1 billion kWh to 0.2 billion kWh, which was mainly due to lower demand from customers within the Group.

The cost of materials includes costs for electricity procurement of €15,986.9 million and costs for gas procurement of €19,607.7 million.

Alongside scheduled amortisation and depreciation, the amortisation and depreciation item includes impairment losses of €236.5 million.

The significant improvement in the other operating result was primarily attributable to higher income from the disposal of assets of €848.2 million in comparison to the previous year. This was offset primarily by lower income from reversals of impairment losses of €189.7 million and lower income from the reversals of provisions of €153.9 million in comparison to the previous year.

The positive development of the financial result was mainly influenced by lower impairment losses on financial assets of €13.2 million, the fall in the interest expenses for nuclear provisions of €44.7 million, a fall in the interest expenses for affiliated entities of €60.7 million and the accrual of tax provisions of €24.0 million. This was offset to some extent by the decrease of €109.9 million in investment income.

There was a positive tax result in the financial year of €84.1 million. The taxes mainly comprise the reversal of provisions for tax audit risks of €107.0 million. In the previous year, there was an allocation to the provisions for tax audit risks of €133.8 million and lower out-of-period tax expenses of €159.0 million. The option of recognising a surplus of deferred tax assets was not exercised.

Net assets of EnBW AG

Balance sheet of EnBW AG

in € million[1]	31/12/2019	31/12/2018	Change in %
Assets			
Non-current assets			
Intangible assets	519.6	635.4	-18.2
Property, plant and equipment	933.7	1,248.4	-25.2
Financial assets	22,125.6	20,130.5	9.9
	23,578.9	22,014.3	7.1
Current assets			
Inventories	494.5	446.7	10.7
Receivables and other assets	2,530.9	3,336.4	-24.2
Securities	45.8	119.2	-61.6
Cash and cash equivalents	169.5	628.1	-73.0
	3,240.3	4,530.4	-28.5
Prepaid expenses	366.6	1,226.3	-70.1
Surplus from offsetting	315.8	268.1	17.8
	27,501.6	28,039.1	-1.9
Equity and liabilities			
Equity			
Subscribed capital	708.1	708.1	–
Treasury shares	-14.7	-14.7	–
Issued capital	693.41	693.41	–
Capital reserve	776.0	776.0	–
Revenue reserves	1,872.5	1,872.5	–
Retained earnings	383.6	279.1	37.4
	3,725.5	3,621.0	2.9
Extraordinary items for investment cost subsidies and grants	23.4	24.0	-2.5
Provisions	11,206.4	11,032.4	1.6
Liabilities	12,094.2	12,414.7	-2.6
Deferred income	454.0	947.0	-52.1
	27,501.6	28,039.1	-1.9

1 In accordance with German commercial law.

The net assets of EnBW AG as of 31 December 2019 are significantly influenced by the non-current assets (particularly the financial assets), the receivables and other assets, as well as by cash and cash equivalents. These are primarily offset by non-current liabilities and provisions relating to nuclear power and for pensions and similar obligations.

Financial assets primarily consist of shares in affiliated entities to the amount of €15,437.0 million, securities held as non-current assets to the amount of €2,726.6 million and investments to the amount of €1,607.0 million. The increase in financial assets of €1,995.1 million includes, on the one hand, shares in affiliated entities primarily as a result of restructuring within the Group and payments into the capital reserve of subsidiaries. In addition, loans to affiliated entities increased by €353.5 million in comparison to the previous year.

Trade receivables to the amount of €715.6 million mainly comprise receivables from trading activities and consumption accruals for electricity and gas deliveries not yet invoiced and were €68.6 million below the figure in the previous year. Receivables from affiliated entities fell by €505.4 million in comparison to the previous year. This was primarily due to the reclassification of loans to affiliated entities.

The cash and cash equivalents of EnBW AG totalling €169.5 million mainly consist of bank deposits, which are invested as time deposits to the amount of €50.0 million. More details on the development of this item can be found in the section "Financial position of EnBW AG".

The provisions for pensions and similar obligations held by EnBW AG to the amount of €5,285.8 million combine obligations from the company pension scheme and other company agreements made by major subsidiaries and EnBW AG. The resulting annual expenses for retirement benefits are paid by the subsidiaries concerned in each case. The increase in the provisions for pensions and similar obligations of €517.3 million was mainly due to the effect of the further decrease in the discount rate as in the previous year. In addition, provisions relating to nuclear power of €3,939.7 million are disclosed, which arise due to public law obligations and requirements in the operating licences.

Of the liabilities totalling €12,094.2 million, €6,635.6 million have a residual term of more than one year. Overall, there are liabilities of €7,347.5 million to affiliated entities, which primarily result from intercompany settlement transactions within the framework of the centralised financial and liquidity management, as well as from loan agreements.

The decrease in liabilities by €320.5 million was mainly due to the reduction in other liabilities from margin payments of €308.9 million and to the decrease of €70.9 million in option premiums received. In addition, there were repayments totalling €70.5 million to bank loans.

Non-current liabilities exist to the amount of €2,700.4 million to EnBW International Finance B.V. as part of the Debt Issuance Programme (DIP) (Glossary, from p. 139), to the amount of €2,992.6 million from the issuing of five hybrid bonds and to the amount of €597.7 million from loan agreements with credit institutions. The main changes in comparison to the previous year were the issuing of two green hybrid bonds with a total volume of €1,000.0 million.

The aim is to cover the non-current pension and nuclear provisions with appropriate financial assets within an economically feasible time period. Overall, financial assets of €22,125.6 million are offset by long-term debt of €15,339.4 million.

The liquidity of EnBW AG on the reporting date guarantees the solvency of the company for the payment of current liabilities from the operating business.

Financial position of EnBW AG

In comparison to the reporting date in the previous year, the liquidity of EnBW AG decreased from €628.1 million by €458.6 million to €169.5 million.

The cash flows of EnBW AG fundamentally arise from both its own operating business and also the operating business of the subsidiaries which balance payments received and made via the bank accounts of EnBW AG as part of the intercompany cash pooling system (Glossary, from p. 139) within the framework of the central financing and liquidity management.

Important business transactions that had an effect on the financial position of EnBW AG in the financial year are summarised below:

Material liquidity-related business transactions in the reporting year were investments in the area of renewable energies and telecommunications totalling €1,189.9 million. These were offset by the sale of an investment resulting in a cash inflow of €342.8 million.

Other significant events were the issuing of two green hybrid bonds with a total volume of €996.5 million and the issuing of a bond with a volume of €74.8 million via EnBW International Finance B.V. This was offset by repayments to bank loans of €70.5 million.

There was a cash outflow of €561.5 million in connection with the utilisation of the nuclear power and pension provisions.

A total of €176.1 million was distributed to the shareholders of EnBW AG in dividends.

This was offset by the receipt of dividends with an impact on liquidity of €271.6 million.

In the 2019 financial year, EnBW AG paid tax arrears for income tax from previous years (including the associated interest) and prepayments for the following year totalling €208.0 million.

Overall assessment of the economic situation of EnBW AG and the development of EnBW AG

In our judgement, the development of the results of operations, financial position and net assets of EnBW AG as of 31 December 2019 is satisfactory after taking into account the effects described below that are not relevant to the ongoing management of the company. In the previous year, an annual net profit of €200 million was expected in 2019. The annual net profit for 2019 stands at €280.6 million and was significantly influenced by effects not relevant to the ongoing management of the company, which arose both at EnBW AG itself and also at its subsidiaries which had an impact on EnBW AG due to profit and loss transfer agreements.

The main effects not relevant to the ongoing management of the company were higher interest expenses for pension provisions and provisions relating to nuclear power totalling €611.6 million (€566.3 million of which is reported under interest expense of EnBW AG) resulting from the drop in the discount rate and were thus €194.6 million higher than expected. Furthermore, allocations to the provisions relating to nuclear power, mainly due to adjustments in cost estimates, of €122.1 million (of which €71.2 million was reported under the cost of materials of EnBW AG) had a negative effect. Other negative effects arose from impairment losses on intangible assets and property, plant and equipment totalling €236.5 million, impairment losses on financial assets of €91.1 million and allocations to provisions for onerous contracts of €60.9 million.

This was primarily offset by income from the disposal of assets of €858.9 million, the reversal of other provisions of €182.4 million and tax provisions of €129.0 million, as well as adjustments to the provisions for onerous contracts of €81.7 million.

Based on the annual net profit of €280.6 million and taking into account the profit carried forward of €103.0 million, there are retained earnings of €383.6 million.

We anticipate an annual net loss of around €250 million in 2020. The net result for the year will be negatively influenced by high interest expenses for non-current provisions. As a result of the low-interest phase, the average interest rate will fall further in the future. We anticipate that this will have a negative impact on earnings of €600 million in 2020. After it has been adjusted for this effect, the annual net profit will be around €350 million. The amount from the valuation of the provisions for pension obligations and the valuation of the dedicated financial assets (Glossary, from p. 139) in the CTA that is ineligible for distribution as dividends will stand at around €900 million by 31 December 2020. Due to a fall in the average interest rate, we expect a negative impact on earnings of a similar magnitude in 2021. We anticipate that this negative impact on earnings will decrease in 2022.

Opportunities and risks

As the business performance, economic situation and opportunities and risks relating to the future development of EnBW AG do not deviate from the business performance, economic situation and opportunities and risks relating to the future development of the EnBW Group, the management report of EnBW AG is combined with that of the EnBW Group (p. 100 ff.).

Comments on reporting

The consolidated financial statements of EnBW AG are prepared in accordance with section 315 e (1) HGB using the International Financial Reporting Standards (IFRS) set by the International Accounting Standards Board (IASB), the adoption of which is mandatory in the EU as of the reporting date. As a vertically integrated energy company in the sense of EnWG, EnBW AG engages in other activities within the electricity sector, other activities within the gas sector and other activities outside of the electricity and gas sectors in accordance with section 6 b (3) sentence 3 and sentence 4 EnWG.

EnBW share and dividend policy

As a result of the small proportion of EnBW shares in free float (www.enbw.com/shareholder-structure), events on the financial markets and the development of the DAX generally only have a minor influence on the development of the EnBW share price. The price of EnBW shares was €29.20 at the start of 2019 and stood at €50.50 by the end of the year (www.enbw.com/stock-chart).

The trust placed in EnBW by capital market participants is based on the value generated by the company. Against this background, EnBW manages the development of value using ROCE and its creditworthiness using the key performance indicators internal financing capability (up to 2020) and debt repayment potential (from 2021). EnBW strives to generally pay a dividend payout ratio of between 40% and 60% of adjusted Group net profit. Based on the annual net profit of EnBW AG of €280.6 million and taking into account the profit carried forward of €103.0 million, there is retained earnings of €383.6 million for the financial year and thus dividends will be paid for the 2019 financial year. If approved by the Annual General Meeting, the dividend to be distributed for the 2019 financial year will be €0.70 per share. Adjusted for IFRS 9 valuation effects, this corresponds to a payout ratio of 40%.

Overall assessment of the economic situation of the Group

The energy sector is currently experiencing a period of great upheaval. There is particular pressure for change due to the Energiewende, digitalisation, sector coupling (Glossary, from p. 139) and the desire of local authorities to become self-sufficient. In addition, the issue of climate protection is receiving greater public attention. The European Commission announced its target of climate neutrality by 2050 in a comprehensive Green Deal in 2019. In 2020, it will investigate the effects of increasing the 2030 climate targets to at least 50% or 55%. With regards to the framework conditions facing EnBW and other players in the energy industry, other measures can be expected as part of the Green Deal in future.

Following the successful implementation of the EnBW 2020 strategy, there will be a smooth transition between the strategy periods: We already strengthened our business activities in the area of renewable energies in 2019 with the acquisition of the French project developer and operator of wind farms and solar parks Valeco. We also took a significant step in building a strong position for ourselves on the nationwide telecommunications market in Germany in 2019 with the acquisition of Plusnet. Both transactions will already contribute to the EnBW 2025 growth strategy.

The operating business developed overall in 2019 as expected and forecast at the start of the year: The adjusted EBITDA of the EnBW Group increased by 12.7% in comparison to the previous year. Adjusted for the effects of the changes in the consolidated companies, the adjusted EBITDA would have increased by 8.1%. The result in the Sales segment developed positively in the reporting year and was at the higher end of our forecast. The acquisition of Plusnet made a significant contribution in this area. The result in the Grids segment increased in line with our forecast. The main factor influencing this positive earnings performance was the higher revenue from the use of the grids, above all due to the increased investment that was necessary for ensuring the security and reliability of supply of the grids. In the Renewable Energies segment, the result improved significantly and was within the forecasted range. In particular, the commissioning of our EnBW Hohe See offshore wind farm and the earnings contributions from the acquired wind farms in France had a positive effect. The result in the Generation and Trading segment fell as forecast due to the loss of the earnings contribution made by VNG Norge and its subsidiary VNG Danmark which were sold in 2018 and lower out-of-period earnings. In total, the Grids and Renewable Energies segments contributed around three quarters of the adjusted EBITDA of EnBW. The adjusted EBITDA for the Group in 2020 will increase further and be between €2.75 billion and €2.9 billion. It will lie above the strategic target as a result.

The non-operating EBITDA decreased further in 2019 compared to the previous year. This decrease is mainly attributable to allocations to provisions for onerous contracts for long-term electricity procurement agreements and risk provisions for a possible obligation to pay EEG cost allocations for the company's own energy deliveries within the EnBW Group.

In total, the Group net profit attributable to the shareholders of EnBW for the 2019 financial year improved by €400.0 million to €734.2 million. Earnings per share amounted to €2.71 in the 2019 financial year, compared to €1.23 in the previous year.

The financial position of the company remains sound. Solvency was ensured at all times throughout the 2019 financial year thanks to the company's available liquidity and its internal financing capability, as well as external sources available for financing. On 29 July 2019, we issued our first two green hybrid bonds with a total volume of €1 billion. EnBW was thus the first German company to issue a green hybrid bond. The adjusted retained cash flow exceeded the forecasted range of €1.3 billion to €1.4 billion in the reporting period, while we just missed the target value for internal financing capability of 2 85% due to the sharp increase in net investment adjusted for growth investment. The fall in ROCE was mainly due to the increase in the average capital employed.

In the customers and society goal dimension, the Reputation Index of EnBW improved in 2019 compared to the previous year; the most positive changes here were amongst customers and the wider public. The satisfaction of the customers of EnBW fell in 2019 as a result of the general trend in the sector, as well as individual measures such as a price adjustment and a system migration. The satisfaction of Yello customers remained at a high level in 2019. Supply reliability improved in 2019. In the employees goal dimension, the Employee Commitment Index rose due to the improved perception of the current competitiveness of our company and employees having greater trust in the future viability of the Group. In the area of occupational safety, the LTIF for companies controlled by the Group fell further. However, the LTIF overall increased slightly. In the environment goal dimension, the expansion of renewable energies is continuing according to plan. The CO_2 intensity (Glossary, from p. 139) of our own generation of electricity fell significantly in comparison to the previous year and was thus well below the forecasted range.

In the estimation of the Board of Management, the operating business of our company developed positively in 2019. Overall, the operating result increased as expected. EnBW is also generally on course in the non-financial goal dimensions.

Forecast

In our forecast we take a look, insofar as is possible, at the expected future growth and development of EnBW in the years 2020 to 2022.

The expected economic, political and regulatory conditions are presented in the chapter "General conditions" (p. 62 ff.). Potential factors influencing the forecast are described in detail in the "Report on opportunities and risks" (p. 100 ff.).

Expected trends in the finance and strategy goal dimensions

Investment over a three-year period

In order to continue to play an active role in shaping the Energiewende, **total investment** of €7.0 billion is planned for the 2020 to 2022 period. This represents on average €2.3 billion per year. €1.6 billion (23%) of this investment will be on existing projects and €5.4 billion (77%) on growth projects. The majority of the total investment will be made in the regulated business (Renewable Energies and Grids).

Total investment 2020–2022
in %

Around 54% of the investment will flow into the **Grids** segment, of which around 38% will be for growth projects and 16% for existing projects. In order to make the transport of renewable energies from the north to the south of Germany possible, funds have been allocated to the transmission grid for the realisation of the two HVDC projects (Glossary, from p. 139) ULTRANET and SuedLink that involve our subsidiary TransnetBW and are part of the Network Development Plan (Glossary, from p. 139). In addition, extensive investment in the expansion and upgrading of the existing grids is planned.

Around 27% of the total investment will be attributable to the **Renewable Energies** segment – of which 26% will be for growth investment. This includes funds for the realisation of further offshore wind farms after 2019. In addition, funds have been allocated for the construction of onshore wind farms both at home and abroad to achieve the 1,000 MW target by 2020 and for solar parks (including three large photovoltaic parks with a total output of around 460 MW) from our comprehensive project pipeline (p. 42).

Around 11% of the investment will be attributable to the **Sales** segment, of which approximately 8% will be for growth investment. This growth investment is mainly intended for the expansion of electromobility, as well as for the development of energy solutions.

Around 9% of the total investment will be attributable to the **Generation and Trading** segment and Other. Growth investment will account for a little more than half of this amount. This mainly comprises investment relating to the accepted bid for the construction of a gas turbine power plant in Marbach am Neckar as special technical equipment for grids.

The investment programme of the EnBW Group thus reflects our strategy for expanding renewable energies and ensuring security of supply in the regulated areas of the transmission and distribution grids.

In order to finance the entire investment volume of around €7.0 billion, **divestitures** amounting to almost €0.7 billion are planned in the years 2020 to 2022. This includes divestitures in the onshore and photovoltaic sectors, which will build on our already realised participation models. The remaining divestitures will involve the receipt of construction cost subsidies and the participation model "EnBW connects". This local authority participation model is currently attracting a great deal of interest from local authorities (p. 82).

The balance of gross investment and divestitures gives the net investment, which is €6.3 billion or €2.1 billion on average per year.

It is expected that the target set in the EnBW 2020 strategy of making a gross investment of €14.1 billion in the period 2012 to 2020 (based on the reference year of 2012) (p. 41) will be exceeded by around €3 billion.

In view of the around €5.1 billion in already realised divestitures by the end of 2019 and the divestitures planned for 2020, we expect that the target set in the EnBW 2020 strategy of €5.1 billion in divestitures (based on the reference year of 2012) (p. 41) will be slightly exceeded.

Adjusted EBITDA and the share of the adjusted EBITDA accounted for by the segments

Development in 2020 (adjusted EBITDA and the share of adjusted EBITDA accounted for by the segments) compared to the previous year

	Earnings performance (adjusted EBITDA) compared to the previous year		Development of the share of adjusted EBITDA for the EnBW Group accounted for by the segments	
	2020	2019	2020	2019
Sales	€325 to €400 million	€294.3 million	10% to 15%	12.1%
Grids	€1,300 to €1,400 million	€1,311.2 million	40% to 55%	53.9%
Renewable Energies	€825 to €925 million	€482.8 million	25% to 35%	19.8%
Generation and Trading	€425 to €500 million	€383.8 million	10% to 20%	15.8%
Other/Consolidation		€-39.6 million		-1.6%
Total	**€2,750 to €2,900 million**	**€2,432.5 million**		**100.0%**

In the **Sales** segment, we expect an adjusted EBITDA in 2020 above the level in the previous year. This development will be due to increased earnings from the area of telecommunications as a result of the acquisition of Plusnet in the 2019 financial year, as well as to efficiencies related to the introduction of a new billing system. Therefore, we expect a stable share of the adjusted EBITDA for the Group accounted for by this segment.

The adjusted EBITDA for the **Grids** segment in 2020 is set to reach the same level as the 2019 financial year and it will thus continue to be the segment with the highest earnings. Revenue from the use of the grids which will come from returns on the increased investment activity in projects that are included in the Network Development Plan Electricity and Network Development Plan Gas (Glossary, from p. 139) is expected to remain stable in comparison to the previous year. We expect a stable or decreasing share of the adjusted EBITDA for the Group accounted for by this segment.

The adjusted EBITDA for the **Renewable Energies** segment will increase significantly in 2020. Our offshore wind farms EnBW Hohe See and EnBW Albatros – which were commissioned in autumn 2019 and at the beginning of 2020, respectively – will make full-year earnings contributions. In addition, the expansion and acquisition of onshore wind farms and photovoltaic power plants realised during the course of 2019 and planned in 2020 will make a positive contribution to earnings. Our forecasts are generally based on wind yields that correspond to the long-term average. As the wind conditions were slightly below the long-term average in 2019, this will result in slightly higher earnings in 2020 in comparison to the previous year. We expect an increase in the share of the adjusted EBITDA for the Group accounted for by this segment.

In the **Generation and Trading** segment, we expect an adjusted EBITDA in 2020 above the level in the previous year. We sold our electricity deliveries for 2020 on the forward market at higher wholesale market prices than in the previous year (Glossary, from p. 139). This will be offset to some extent by the decommissioning of Block 2 of our Philippsburg nuclear power plant. The share of the adjusted EBITDA for the Group accounted for by this segment should remain stable.

In Other/Consolidation, an adjustment to the management concept in connection with the reorganisation of the SAP system will have an effect in the 2020 financial year in comparison to the previous year. The expenses for the Group functions will no longer be split between the operating segments. This will have a positive effect on the adjusted EBITDA in all segments.

The **adjusted EBITDA** for the EnBW Group in 2020 will increase further and be between €2.75 billion and €2.9 billion. Earnings will thus lie between €350 million and €500 million above the strategic target value. We expect a slight increase in adjusted EBITDA for the Group in 2021 in comparison to 2020. This will be due to a constant increase in earnings in all segments.

The **EBITDA** in 2020 and 2021 will develop in line with the adjusted EBITDA. We do not make any forecasts relating to material non-operating effects.

The **EBT** relevant to remuneration is expected to be between €1.05 billion and €1.15 billion in 2020 as a result of the rise in adjusted EBITDA and will thus increase in comparison to the previous year. A further slight increase in EBT is expected in 2021. The accuracy of the forecast for EBT is, however, still dependent on other exogenous factors that cannot be planned for, such as impairment losses, the reversal of impairment losses or impending losses for onerous contracts for electricity procurement agreements.

Assuming an adjusted EBITDA in the range of €2.75 billion to €2.9 billion, we expect to achieve an **adjusted retained cash flow** (p. 78) of between €1.9 billion and €2.0 billion. This includes an increase of €245 million from the reimbursement of the nuclear fuel rod tax (Glossary, from p. 139). Adjusted for this effect, the anticipated dividend payment of around €340 million (including payments from investments to third parties) and the income tax payments, we expect an FFO of between €2.2 billion and €2.3 billion. The adjusted retained cash flow is expected to fall in 2021 in comparison to 2020, which will be primarily due to the elimination of the adjustment for the repayment of the nuclear fuel rod tax.

Internal financing capability

Key performance indicator

	2020	2019
Internal financing capability in %	around 100	82.6

We expect an internal financing capability in 2020 of around 100% because planned net investment and the adjusted retained cash flow will be at a comparable level. We continue to strive to maintain an internal financing capability of around 100% for the period from 2017 to 2020. However, it is possible that the internal financing capability may fall below 100% in individual years. Following the transition to the growth strategy, the key performance indicator internal financing capability will be replaced by the new key performance indicator debt repayment potential from 2021 on.

ROCE

Key performance indicator

	2020	2019
ROCE in %	5.5–6.0	5.2

In the 2020 financial year, ROCE is expected to be above the level in the previous year and at between 5.5% and 6.0%. In general, investments tend to lead at first to a fall in ROCE due to a low initial contribution to earnings. Investment in our offshore wind farm EnBW Hohe See and the acquisition of Valeco and Plusnet had a strong negative impact on ROCE in 2019. The ROCE is expected to recover in 2021. The forecast for the ROCE in 2020 is below the stated strategic target for 2020 due to higher capital employed – in comparison to the strategy – but without a corresponding increase in EBIT. The capital employed is significantly higher due to an increase in the cumulative investment volume (€3.0 billion) and the revaluation of EnBW Hohe See. Alongside a lower weighted average cost of capital (WACC) compared to 2012, increased impairment losses on additional investments, a significant fall in the discount rate for the nuclear provisions and the revaluation of EnBW Hohe See have a negative impact on EBIT.

The ROA will develop in line with the ROCE. In 2020, the ROA is expected to be between 5.2% and 6.2%, while we anticipate that it will increase slightly in 2021 compared to 2020 as things currently stand.

Expected trends in the customers and society goal dimension

Key performance indicators

	2020	2019
Reputation Index	55.4	52.8
Customer Satisfaction Index for EnBW/Yello	114–136/ 148–159	116/157
SAIDI (electricity) in min./year	15–20	15

Reputation Index

EnBW will strive to noticeably improve its reputation continuously over the next few years. The Reputation Index is an important non-financial performance indicator because this index value is influenced by a whole series of factors that are important to the future viability of our company. The existing reputation management department and the stakeholder team at EnBW can recommend measures for optimising the reputation of the company.

Customer Satisfaction Index

We also continue to expect a high level of competitive pressure in 2020 both from direct competitors within the energy industry and, to an increasing extent, competitors from other sectors that have already entered the energy market or will do so shortly. In addition, exogenous factors could negatively impact customer satisfaction more and more in the future, such as discussions about the future of coal-fired power generation, the development of state levies, the proposed gradual increase in CO_2 prices up to 2023 included in the German government's climate action package, increasing costs or delays to the expansion of the grids. To improve the satisfaction of our customers, we are also expanding our range of sustainable energy industry services and energy solutions and targeting our sales activities in this direction in 2020. We will combine traditional energy products (electricity and gas) with household and energy-related products to offer our customers a range of "ecosystem solutions". One example is an EnBW mobility+ offer that bundles an electric car with a green electricity tariff, a charging box for the home and other e-mobility services. On the basis of the goals described above, we are striving to achieve a Customer Satisfaction Index for EnBW of between 114 and 136 points in the 2020 financial year.

The aim is to continue to keep the index value for the satisfaction of Yello customers within our forecast. Therefore, there will be a greater focus on the expansion of personalised customer contact and customised offers in 2020. In addition, new electricity and gas products, more content in the Yello Magazine and the further development of digital services should increase the attractiveness of the Yello portfolio even more. On this basis, we are striving to achieve an index value for Yello of between 148 and 159 points in the 2020 financial year – as in the previous year.

It is anticipated that we will not fully achieve the target values in 2020 that were defined in our EnBW 2020 strategy for a Customer Satisfaction Index of >136 for EnBW and >159 for Yello. We believe that the main reason for this is that climate protection measures have made the consumption of energy increasingly expensive for customers. Despite the fact that we have developed new skills, offers and services in this area, this has negatively impacted the perception of the energy sector overall.

SAIDI

The grid subsidiaries of EnBW have always achieved a highly reliable supply throughout their grid area and for their customers. The corresponding key performance indicator SAIDI, which states the average duration of supply interruptions per connected customer per year, stood at 15 minutes in 2019. We are striving to achieve a value of between 15 and 20 minutes in the 2020 financial year and subsequent years.

Expected trends in the employees goal dimension

Key performance indicators

	2020	2019
Employee Commitment Index (ECI)[1]	≥66	66
LTIF for companies controlled by the Group[2]	≤2.1	2.1
LTIF overall[3]	≤3.8	3.8

1 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except ITOs))
2 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for companies in the area of waste management as well as external agency workers and contractors)
3 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for external agency workers and contractors).

Employee Commitment Index

The Employee Commitment Index (ECI) reached 66 points and thus clearly exceeded the target we set for 2019 of 63 points. In 2020, we have set ourselves the goal of maintaining this high level and matching at least the level achieved in 2019. We anticipate that we will achieve or even exceed the target value defined in the EnBW 2020 strategy for 2020 of 65 points.

LTIF

We are committed to our goal of continuously improving occupational safety within the company for both our own employees and third-party employees who carry out work on behalf of EnBW. Therefore, we have implemented numerous accident prevention measures. The main focus of our measures will be placed on the roll-out of the new Quentic software as well as a heightened awareness for unsafe situations and conditions. Consistent reporting of these types of occurrences and communication amongst employees about hazardous situations will help us to increase the awareness of employees. We intend to continuously reduce the LTIF for companies controlled by the Group and LTIF overall.

Expected trends in the environment goal dimension

Key performance indicators

	2020	2019
Installed output of RE in GW and the share of the generation capacity accounted for by RE in %	5.0/>40	4.4/31.8
CO_2 intensity in g/kWh	16%–23%	419

Installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE

The installed output of renewable energies will increase to 5 GW in 2020, which will primarily be due to the EnBW Albatros offshore wind farm that was placed into operation at the beginning of 2020 and the Weesow-Willmersdorf solar park that is currently being realised. In addition, there are plans to further expand onshore wind and photovoltaic power plants. As a result, and also because of the shutdown of Block 2 of the Philippsburg nuclear power plant, the share of the generation capacity of the Group accounted for by renewable energies will increase. In subsequent years, we also expect a continuous increase in the installed output of renewable energies. This will also increase the share of the generation capacity accounted for by RE further.

CO_2 intensity

In 2020, we expect an increase in own electricity generation from renewable energy sources due to the further expansion of renewable energies. At the same time, we expect an increase in the use of our thermal power plants in comparison to the previous year as they were utilised far less than expected in 2019 due to the prevailing market prices. Important factors for uncertainty in the 2020 forecast include the volatility of the wind and water supplies, the further development of the clean dark spread (Glossary, from p. 139) and the utilisation of the power plants for redispatch. As a result of the low CO_2 intensity (Glossary, from p. 139) in 2019, an increase of between 16% and 23% in comparison to the previous year is expected in the 2020 financial year. This forecast nevertheless corresponds to our defined target for 2020 of a reduction in CO_2 intensity of between 15% and 20% compared to the reference year 2015.

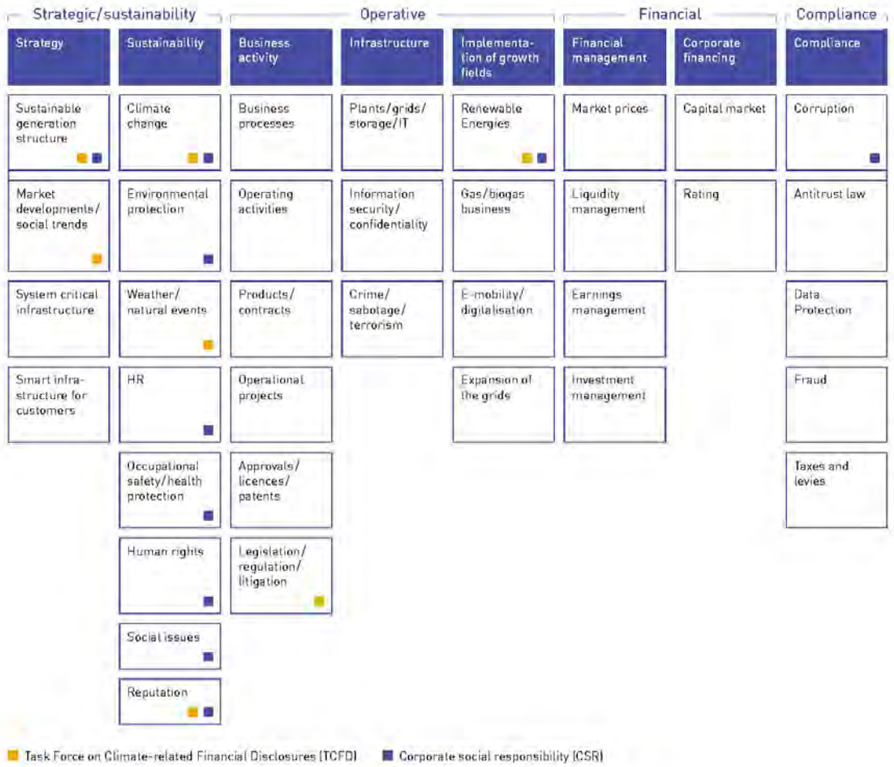
Overall assessment of anticipated developments by the management

We expect an increase in adjusted EBITDA for the Group in 2020 compared to 2019. The shift in earnings between the segments laid out in our strategy will continue in 2020. We will exceed our target values for 2020 at a Group level and at least achieve the targets at a segment level. This means that we will be able to continue to make sufficient investment funds available internally to enable us to play an active role in shaping the Energiewende. We continue to strive to maintain a balanced financing structure, solid financial profile and thus solid investment-grade ratings (Glossary, from p. 139). With respect to our non-financial key performance indicators, we expect a stable to positive development in 2020.

Report on opportunities and risks

Principles of the integrated opportunity and risk management system

Opportunity and risk map

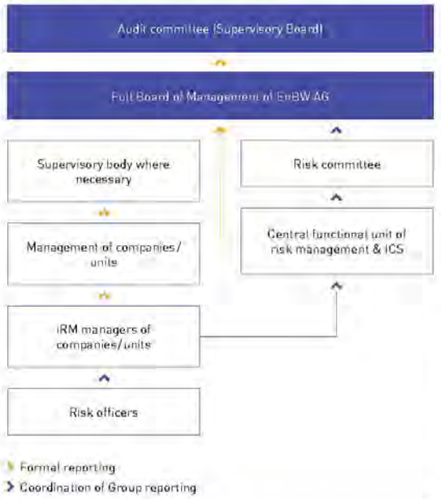


The integrated opportunity and risk management system (iRM) of EnBW is based on the internationally established COSO II framework as a standard for risk management systems that span entire companies. The iRM aims, through a holistic and integrated approach, to effectively and efficiently identify, evaluate and manage opportunities and risks (including monitoring) and report on the opportunity/risk position, as well as to ensure the appropriateness and functionality of related processes. Risk management involves measures for avoiding, reducing or transferring risk through adequate accounting provisions, as well as measures for managing risk tolerance. For this purpose, we define an opportunity/risk as an event that might cause a potential over-attainment/non-attainment of strategic/sustainability, operational, financial and compliance goals in the future. The iRM process also takes into account the guidelines for a non-financial declaration. In order to identify and categorise opportunities and risks, the opportunity and risk map that is well-known throughout the Group is utilised. The risk map is used to explicitly consider possible opportunities and risks that affect the sustainable orientation of our company.

As well as focusing on the fulfilment of the requirements for a non-financial declaration, the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139) are also taken into account. In addition, the iRM process is also subject to ongoing development within the scope of digitalisation.

Structure and processes of the integrated opportunity and risk management system

Structure and process of the iRM system



The structures and processes of the iRM are well-known throughout the Group. The central risk management & ICS functional unit is responsible for specifying methods, processes and systems for the whole Group, determining the opportunity and risk position of the Group and for reporting. The central steering body is the risk committee, which – with the involvement of specially selected units/companies – is responsible for clarifying relevant issues from various Group perspectives, as well as for determining selected top opportunities/risks.

The iRM is tested annually by the Group auditing department with a focus on different main themes each year and the results of the test are then presented to the Supervisory Board in the form of a so-called effectiveness report. All opportunities and risks are firstly assessed with the help of the iRM relevance filter before and after consideration has been taken of both implemented and envisaged management instruments. In the process, they are allocated to one of seven relevance categories on the basis of quantitative and qualitative criteria for each of the four dimensions: strategic/sustainability, operational, financial and compliance.

The opportunities and risks are evaluated within the medium-term planning period. As long as a financial evaluation of the opportunities and risks is possible, they are allocated to relevance classes 0 to 4 if they have a value in the range from less than €0.2 million up to less than €50 million within the medium-term planning period. From relevance class 5 and above and with a probability of occurrence of over 50%, the opportunities and risks are generally included in the Group report on opportunities and risks. This corresponds to €50 million within the medium-term planning period. The top risks/opportunities and the long-term opportunities and risks that are of particular importance are then added. The reports are submitted on a quarterly basis in standardised form. In the case of any significant changes, a special report is immediately issued.

Those opportunities or risks relevant to the Group report on opportunities and risks are generally evaluated in relation to the current planning period using quantitative methods (e.g. scenario techniques and distribution functions) for the purpose of stochastic modelling. Any possible effects on the adjusted EBITDA, the adjusted EBIT and the capital employed (with any associated impact on the ROCE), the retained cash flow or the adjusted retained cash flow, the net investment or the adjusted net investment (with any associated impact on the internal financing capability) and the net debt are considered. Alongside these financial effects, opportunities and risks can also have impacts on the other key performance indicators (p. 43 ff.), which are discussed with those responsible in the specialist areas.

Any opportunities and risks with a probability of occurrence of up to 50% are subject to an individual review to determine whether they should be taken into account in the next planning session. Opportunities and risks with a probability of occurrence of over 50% are generally taken into account in the planning process and, as far as possible, appropriate accounting measures are taken in the consolidated financial statements in accordance with IFRS.

Alongside the top opportunities/risks, there are a wide variety of other opportunities and risks facing the Group that are allocated to relevant risk categories on the opportunity and risk map (p. 100) and evaluated with the aid of the iRM relevance filter. Alongside the key performance indicators in the finance and strategy goal dimensions, these effects can also have an impact on the key performance indicators in the customers and society, employees and environment goal dimensions. Any impact on the areas of compliance, social engagement and procurement is also examined in the process.

Relevance filter for classifying opportunities and risks

Strategic/sustainability	Operative	Financial	Compliance
Achievement of strategic targets, sustainability targets, e.g. climate protection, environmental protection, reputation	Achievement of business targets functional processes, retaining added value, customer/external effects	Achievement of financial targets, generally in accordance with medium-term planning or approved (project) budgets	Compliance with legal/official regulations and internal regulations
Relevance class 5			
One strategic/sustainability target for the EnBW Group is not achieved	> One key operational target for the EnBW Group is not achieved > The value added is massively disrupted across the company/business units/functional units	≥ €50 million (relevance threshold for functional units and EnBW Group)	Breach of legal/official regulations and/or internal regulations with negative consequences for the EnBW Group
Relevance class 6			
Several or all strategic/sustainability targets for the EnBW Group are not achieved	> Several or all operational targets for the EnBW Group are not achieved > Value added throughout the whole Group is massively disrupted	≥ €250 million	Breach of legal/official regulations and/or internal regulations with serious negative consequences for the EnBW Group

Group reporting level

Structure and processes of the accounting-related internal control system

Principles

An accounting-related internal control system (ICS) has been established at EnBW that is designed to ensure proper and reliable financial reporting. In order to guarantee that this ICS is effective, the appropriateness and functionality of the Group-wide control mechanisms are tested regularly at the level of the individual companies and at a Group level.

If any existing weaknesses are identified in the control system and are considered relevant to the financial statements, they are promptly remedied. This accounting-related ICS methodology is based on the COSO II standard.

Once the control mechanisms have reached a standardised and monitored degree of maturity, and no material control weaknesses can be identified, the accounting-related ICS is deemed to be effective. The materiality of control weaknesses is measured as the probability of occurrence and the extent to which there could be a potential misstatement in connection with those financial statement items concerned. The accounting related risk management system defines measures for identifying and assessing risks that jeopardise the preparation of compliant financial statements as part of the accounting-related ICS.

Despite having established an ICS, there is no absolute certainty that it will attain its objectives or that it will be complete. In individual cases, the effectiveness of the ICS can be impaired by unforeseeable changes in the control environment, fraud or human error.

Structure

The accounting-related ICS at EnBW is organised at both a centralised and decentralised level. All key companies, business units and functional units have an ICS officer. These officers monitor the effectiveness of the ICS and evaluate any control weaknesses that may arise. A report on the effectiveness of the ICS is prepared on an annual basis. The ICS officer at Group level assists the companies/units with the implementation of standardised procedures and also consolidates collected data.

Processes

Standardised procedures ensure completeness and consistency in the preparation of the financial statements and financial reporting. The accounting-related ICS defines controls designed to ensure compliance with the accounting policies used by the Group, and with the procedures and deadlines for the individual accounting and consolidation processes. During the Group consolidation process, the rigorous implementation of the four-eye principle is observed, while random samples and deviation analyses improve quality. An annual control cycle monitors whether the documentation is up to date and also checks the appropriateness and functionality of the controls. In addition, it identifies and evaluates any control weaknesses that may arise.

A risk-based selection process defines relevant companies/units, significant items in the financial statements and processes including their associated control measures.

The defined processes and controls are recorded in a central documentation system. The effectiveness of the various control activities is then assessed. If any control weaknesses are identified, their effect on the financial statements is evaluated. The results are reported at both company or unit level and at Group level. Furthermore, the Group auditing department performs ICS reviews as part of its risk-oriented audit planning.

Non-financial declaration

As part of the non-financial declaration, we closely analyse the related opportunities and risks in the areas of compliance, social engagement and procurement, as well as in the customers and society, employees and environment goal dimensions. In order to guarantee that the requirements for a non-financial declaration are fulfilled, the established iRM methods and the associated process are used. In this context, the iRM also identifies opportunities and risks relating to climate protection and thus provides important impetus for the implementation of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) [Glossary, from p. 139]. You can find further information on this subject on p. 122.

Risks associated with the non-financial declaration

The non-financial declaration describes, amongst other things, the fundamental opportunities and risks connected with the EnBW business model and the activities based upon it that could have a possible impact on one of the individual issues. Material individual risks with a very high probability of a serious negative impact in relation to any of the following issues do not exist at EnBW.

Compliance

The observance of relevant legal regulations and internal company rules forms the basis of our business activities. Managing compliance risks at EnBW (with a main focus on corruption, antitrust and data protection risks) is the task of the compliance management system, which comprises regular risk assessments of this type. Risks related to fighting corruption and bribery are addressed on p. 49 f. in a cross-segment manner.

Social engagement

There are no risks in the area of social engagement. In fact, we take our social responsibility for civic and social engagement seriously (p. 53 f.).

Procurement

Sustainable procurement – purchasing: In the area of procurement, risks cannot be excluded due to increasing levels of complexity and the large number of suppliers. Purchasing utilises an active risk management system, counters procurement risks and implements the necessary measures for safeguarding against and avoiding risk. These risks are managed using defined processes and, in this context, especially through the pre-qualification process (p. 59 f.).

Raw materials procurement – coal and gas: In the area of raw materials procurement and thus in the associated supply chain, there are, above all, potential human rights risks. Respect for human rights is ensured using a multi-stage auditing process as part of the procurement process – with all existing and potential suppliers being regularly subjected to a screening process. Other measures that form part of the assessment are carried out in direct cooperation with the compliance department. In coal mining, there are possible human rights risks related to the working and living conditions of people in the coal mining regions. An increase in civil society activity in this context can in turn result in an increase in reputational risks. We are in constant contact with representatives from civil society and keep them informed about the advances made and challenges faced in all sustainability topics (p. 60 f.).

In preparation for future (liquid) gas contracts, we carried out further (preliminary) assessments of the sustainability and compliance of producers from different countries as part of the process for auditing business partners. No material human rights risks were identified in the supply chain for the USA as a potential source of supply. We identified no issues in connection with other producers either that would necessitate a more in depth analysis.

Customers and society goal dimension

Reputation: All opportunities and risks, as well as non-financial issues, can have a positive or negative impact on reputation and thus on the key performance indicator, the Reputation Index (p. 81). The reputation management department thus identifies opportunities and risks related to reputation, develops measures to protect and improve reputation, advises the Board of Management and management and provides recommendations for action.

Customer proximity: Risks exist especially in connection with the still high level of competitive pressure both from direct competitors within the energy industry, and to an increasing extent, competitors from other sectors that have already entered the energy market or will do so shortly. This is associated with the risk of a negative impact on the customer base and sales volumes. Opportunities exist above all through the provision of a broader range of customer-specific products and services such as offering hardware bundles [Glossary, from p. 139] and product options, as well as through processes more oriented to the customer. EnBW also continued to expand its range of sustainable energy industry services and energy solutions in 2019 and targeted its sales activities in this direction (p. 81 f.).

Employees goal dimension

Employee commitment: Due to competition on the job market, there is a risk when recruiting employees that the company will not be able to secure a sufficient number of employees with the necessary qualifications and expertise in the relevant target groups. In addition, this risk is exacerbated by demographic trends and the stricter conditions facing the energy industry. We believe that regular anonymous employee surveys, from which we derive the Employee Commitment Index (ECI) as a key performance indicator, are an important tool for seizing opportunities early in the areas of employee development and employee loyalty (p. 83 f.).

Occupational safety: Risks generally exist in the areas of occupational safety and health protection in our business activities. We counter these risks using comprehensive organisational and procedural measures, such as workplace-specific hazard analyses, to protect employees as well as possible against any adverse consequences. We also view these measures as an opportunity to preserve the capacity of our employees to do their work and to maintain the position of EnBW as an attractive employer. Occupational safety is measured in the form of the key performance indicator LTIF for companies controlled by the Group and LTIF overall (p. 86 f.) in the employees goal dimension.

Environment goal dimension

Expansion of renewable energies: Risks generally exist in the approval and auction process. These risks can result in delays to the further expansion of renewable energies. Due to the fact that the auctions are held on equal terms, we continue to expect a high level of competition. We measure the expansion of renewable energies with our key performance indicator "installed output of renewable energies (RE) and the share of the generation capacity accounted for by RE" (p. 87 f.).

Climate protection: Risks generally exist in the area of environmental protection due to the operation of power generation and transmission plants with possible consequences for the air, water, soil and nature. The importance of climate protection is taken into account in, for example, the key performance indicator CO_2 intensity (Glossary, from p. 139) (p. 88 f.).

We counter these risks using, amongst other things, an environmental management system certified according to DIN EN ISO 14001:2015, which has been established at key subsidiaries (p. 87). We take the safety of the population and the protection of the environment very seriously. In this context, risks also exist due to external circumstances, such as extreme weather conditions. We counter these risks using comprehensive organisational and procedural measures to reduce their impact. We ensure that the risks posed by crisis and emergency situations are mitigated quickly, effectively and with a coordinated approach through regular crisis management exercises and other measures. Through our diverse range of activities in the areas of environmental, nature and species protection, we also utilise the opportunity – beyond our core activities – to make a substantial contribution to improving environmental protection. Thanks to the positive public perception of these activities, they can also have a positive impact on our key performance indicator Reputation Index (p. 81).

At the same time, EnBW also faces potential risks due to the ongoing process of climate change. For example, more frequent extreme weather conditions leading to highly fluctuating water levels or limits being placed on emissions locally could have a negative impact especially on the operation of power plants and thus the security of supply (electricity grids). The operation of hydropower plants can be restricted by both a lack of or also an abundance of water. The output from thermal power plants that must be cooled could possibly be impacted by temperature limits on discharged water. Increasing volatility in the availability of wind, water and sun presents challenges in terms of planning certainty for the operation of power plants and the sale of volumes of electricity (p. 41 f.). For this reason, the top opportunity / top risk wind fluctuations has been reported since the Integrated Annual Report 2016, although these opportunities / risks have no material effect on non-financial issues. In addition, there is uncertainty due to increasing environmental restrictions for the realisation of projects for sustainable energy generation and for the operation of power plants. These risks are managed and mitigated through internal processes using targeted control measures.

Alongside changes in physical climate parameters and other developments relating to or governed by environmental factors, regulatory guidelines and changes in the market also flow into the risk evaluation process. However, there are also opportunities such as changing customer needs (p. 81 ff.) and an increasing demand for climate-friendly products such as e-mobility. These opportunities and risks are regularly and systematically identified Group-wide. The first recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) (Glossary, from p. 139) have been implemented and are communicated in the report on opportunities and risks. Building on the revision of the risk map in 2016, special focus is placed on sustainability aspects – especially climate protection targets – and they will be anchored more deeply in the risk evaluation process in future. Therefore, we have closely examined the significance of sustainability and climate protection themes for the business model and aim to implement measures and set targets to orientate our risk management system even more towards climate-related risks (p. 33 and 87).

Opportunity and risk position

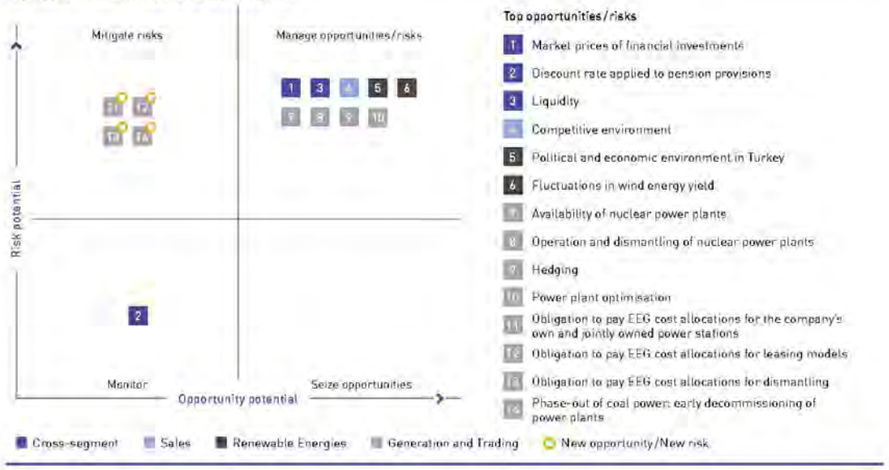
The diagram on the following page illustrates how the opportunity and risk position is reported to the Board of Management and the audit committee of the Supervisory Board. The arrangement of the top opportunities / risks in the quadrants indicates how EnBW can employ control measures to exploit the opportunities or to counteract the risks.

The individual evaluations of the top opportunities / risks tell us – based on the relative level of opportunity / risk – what effects they could have with a high probability of occurrence on our key performance indicators in the finance goal dimension: adjusted EBITDA, internal financing capability, ROCE and net debt. The risks are depicted after the implementation of the risk limitation measures.

The following opportunities and risks were new in 2019:

- Obligation to pay EEG cost allocations (Glossary, from p. 139) for the company's own and jointly owned power stations
- Obligation to pay EEG cost allocations for leasing models
- Obligation to pay EEG cost allocations for dismantling
- Phase-out of coal power: early decommissioning of power plants

Top opportunities / risks as of 31/12/2019



Details on the top opportunities / risks, as well as other opportunities / risks relevant to the report, and their potential effects on the relevant performance indicators are listed in the following section.

Cross-segment opportunities and risks

Our company faces general **risks from legal proceedings** due to our contractual relationships with customers, business partners and employees. To a lesser extent, we are also conducting legal proceedings relating to topics in the area of corporate law. For this purpose, adequate accounting provisions are made or, in the event of a probability of occurrence of < 50% adequate contingent liabilities. As a consequence, there is also an opportunity of positive effects on earnings if these provisions can be reversed once again. In addition, various court cases, official investigations or proceedings and other claims are pending against EnBW. The probability of these actions being successful is, however, considered very low and thus they are not reported under contingent liabilities and other financial obligations.

In connection with these types of legal proceedings, we also recognise the **water concession risk in Stuttgart.** In the court proceedings dealing with the takeover of the water grid after the water concession in the state capital Stuttgart expires, the state capital and EnBW are still striving to reach an amicable settlement. The court proceedings have been suspended several times, namely from January 2015 until the end of 2016 and from April 2018 until the end of January 2019, to give the parties the opportunity to reach an amicable settlement. Unfortunately, it was not possible to reach such an agreement due to a difference of opinion on the valuation. The next court hearings are expected to be held in March 2020. Therefore, there continues to be a risk in 2020 of losing the water grid without receipt of adequate compensation.

Financial opportunities and risks

1 Market prices of financial investments: The financial investments managed by the asset management system (Glossary, from p. 139) are subject to opportunities and risks due to price changes and other valuation changes as a result of the volatile financial market environment (p. 72). A significantly higher amount of securities allocated to the dedicated financial assets must, since 2018, be measured at fair value through profit or loss in accordance with IFRS 9. The fluctuation in the value of these securities is recognised in profit or loss and stood at €335.5 million in the reporting year (previous year: €-38.5 million). Through corresponding effects, this could have either a positive and negative impact in 2020 and 2021 on net debt in the low to mid three-digit million euro range. For the market prices for financial investments, we currently identify an equal level of opportunity and risk due to the increased volatility on the financial markets.

2 Discount rate applied to pension provisions: There is a general opportunity and risk due to any change in the discount rate applied to the pension provisions because the present value of the pension provisions falls when the discount rate increases and increases when the discount rate falls. On the reporting date for the annual financial statements of the Group in 2019, the discount rate stood at 1.1% in comparison to the previous year (1.8%). The future development of interest rates could have a positive impact in the low four-digit million euro range or a negative impact in the low to mid three-digit million euro range on the development of net debt in 2020 and 2021. Against the background of the expected development of interest rates in future, we currently identify an increased level of opportunity and a lower level of risk.

3 **Liquidity:** Due to unforeseeable developments, especially margin payments, unused project funds or tax issues as well as financial market crashes, the Group's liquidity planning is subject to uncertainty that could lead to deviations between actual payments and planned payments. In general, there is also a risk of additional liquidity requirements if the rating agencies downgrade the credit rating of EnBW (p. 72 f.). The risk of margin payments is increasing primarily as a result of rising trading volumes and greater volatility on the energy market. These effects could have a total positive or negative impact in the mid three-digit million euro range on net debt in 2020 and 2021, as well as an indirect impact on the key performance indicator ROCE via capital employed and on internal financing capability via the adjusted net investment. We currently identify a balanced level of opportunity and risk in this area.

Compliance opportunities and risks

Compliance risk assessments focus, in particular, on assessing risks and defining appropriate preventative measures in the compliance risk areas of corruption, antitrust law and data protection.

Risks for which we derive measures for fighting corruption and bribery primarily exist in sales activities relating to local authority/political business when dealing with public officials. Important preventative measures, especially training and advisory services, are described on p. 49 f.

In addition, there are antitrust risks in the sales activities of some subsidiaries that could result in fines and damaged reputation and also have significant strategic implications. This risk is countered by the joint preventative measures of the compliance and legal departments.

The incorrect handling or illicit disclosure or use of personal data poses data protection risks. These risks exist in view of the digital transformation of many business activities. Advisory and awareness services and process controls are in place to guarantee adherence to legal data protection requirements in the Group. Company-specific measures are coordinated via the compliance and data protection department.

Sales segment

Financial opportunities and risks

4 **Competitive environment:** There is a risk that the continued tense competitive situation for all EnBW brands in the electricity, gas and energy solutions business could have a negative effect on the customer base, sales volumes and price levels. In the future, there will still be pressure on prices and a willingness amongst customers to switch suppliers. The EnBW 2020 strategy also covers the development and expansion of system solutions and complete solutions that are specifically tailored to the various customer segments (p. 41 ff.). Alongside the traditional supply of electricity and gas, we see good opportunities here also for offering our customers innovative energy solutions in the areas of energy technology in the home, e.g. with products such as photovoltaic storage systems, the area of corporate energy efficiency and also electromobility (p. 81 ff.). The EnBW subsidiaries Plusnet and NetCom BW should grow together and play an even stronger role on the market in the future. We believe that this is also an important step in the expansion of sustainable infrastructure and should achieve corresponding earnings contributions for our company. This could have both a positive or negative impact in the low single-digit million euro range on the key performance indicator adjusted EBITDA in 2020 and 2021 and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. We currently identify a low level of opportunity and risk in this area.

Grids segment

Strategic opportunities and risks

Recognition of costs for high-voltage direct current (HVDC) transmission technology: TransnetBW plans to set up new connections using high-voltage direct current transmission technology (HVDC) (Glossary, from p. 139) with other transmission system operators. A regulation stipulating the use of underground cabling also applies to the SuedLink project. In both projects, there are currently general risks of potential delays and additional costs, as well as a low level of risk that the necessity for these transmission lines might no longer be confirmed in a new Network Development Plan.

Financial opportunities and risks

Year-end balance on the EEG bank account: The EEG bank account is a separately managed bank account in accordance with section 5 of the German Compensation Mechanism Ordinance (AusglMechV) and is thus kept separate from other areas of activity. In accordance with AusglMechV, a deficit or surplus on the account balance can have a temporary positive or negative effect on the calculation of the net debt of EnBW, respectively. As of the reporting date on 31 December 2019, there was a surplus in the low three-digit million euro range on the EEG bank account of our subsidiary TransnetBW. Due to the EEG cost allocations (Glossary, from p. 139) defined for 2020, we anticipate that the bank account balance will tend to fall in 2020 and 2021.

Renewable Energies segment

Strategic opportunities and risks

5 **Political and economic environment in Turkey:** We have been commercially active in Turkey for many years in the expansion of energy generation from wind power and hydropower. In the past few years, the economic and political framework conditions in Turkey have deteriorated noticeably. We continue to monitor these developments very closely, especially because we have a duty of care for those employees working in Turkey. There has been an increased security risk for a number of years, although no immediate risk to local employees can currently be identified. We are still in regular contact with the German embassy, the German Consulate General, our partner Borusan and other German companies active in Turkey so that we will be able to identify any negative developments as early as possible and respond in good time. This risk could have an effect on the key performance indicator ROCE in 2020 and 2021. We currently identify a low level of opportunity and risk in this area.

Financial opportunities and risks

6 **Fluctuations in wind energy yield:** There is a general opportunity or risk for wind power plants due to wind energy yield fluctuations because the amounts of electricity generated by them are subject to variations in the mean annual wind speed. These fluctuations naturally grow as we acquire more and more wind turbines. In order to take these wind fluctuations into account in our planning, wind reports were created. In addition, measurement campaigns are being carried out up to the end of 2020 to evaluate wind speeds. Nevertheless, these wind fluctuations could naturally have both a positive or negative impact in the high double-digit million euro range on the key performance indicator adjusted EBITDA in 2020 and 2021 and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. Following the expansion of our wind portfolio with the addition of the wind turbines at EnBW Hohe See and EnBW Albatros, we currently identify an increasing level of opportunity and risk in this area.

Generation and Trading segment

There are general risks associated with the operation and dismantling of nuclear power plants. During the dismantling of nuclear power plants, there is an additional risk of a delay in the return of waste to the local **intermediate storage facilities,** with possible additional costs as a result of the waste being stored for a longer period of time in Great Britain and France, as well as the risk of further costs for approval and authorisation procedures.

At the end of 2019, the remaining provisions held by EnBW were revalued as part of the regular examination of the discount rate and escalation rate. Due to changes in these kinds of assumptions in the future, we currently identify a low level of opportunity and risk for the remaining **nuclear provisions.**

Depending on market developments and the framework conditions related to the Energiewende, there is a general risk of a negative impact on earnings due to **impairment losses on power plants and impending losses for onerous contracts for electricity procurement agreements.**

Operative opportunities and risks

7 **Availability of nuclear power plants:** There is a general risk that exogenous and endogenous factors will have an influence on the availability of these power plants. We strive to counter these risks using preventive measures. Depending on their duration, interruptions to the operation of the power plants can positively or negatively impact the operating result. The availability of nuclear power plants could have a negative effect in the low single-digit million euro range and a positive effect in the low double-digit million euro range on the key performance indicator adjusted EBITDA in 2020 and 2021, and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. We currently identify a rather higher level of opportunity in this area.

8 **Operation and dismantling of nuclear power plants:** For long-term major projects such as the remaining operation and dismantling of a nuclear power plant, there is a general risk that delays and additional costs may arise over the course of time due to changed framework conditions. The following issues can arise, amongst other things: delays to approvals, an increase in the amount of preparation work required for dismantling, developing buffer zones and retrofitting work and bottlenecks in the supply of the necessary resources. In addition, there is an opportunity to make cost savings due to synergies over time and also due to learning effects for subsequent dismantling activities. There could be opportunities in the mid double-digit million euro range and risks in the high double-digit million euro range that have an effect on the development of net debt in 2020 and 2021. We currently identify a balanced level of opportunity and risk in this area.

Financial opportunities and risks

9 **Hedging:** When selling generated electricity volumes, EnBW is exposed to the risk of falling electricity prices and the risk of the unfavourable development of fuel prices in relation to electricity prices. The concept underlying our hedging strategy not only limits risk but also seeks to exploit opportunities. The hedging instruments utilised in 2019 were forwards, futures and swaps. The EnBW Group has exposure to foreign exchange risks from procurement and the hedging of prices for its fuel requirements, as well as from gas and oil trading business. This could have both a positive or negative impact in the low double-digit million euro range on the key performance indicator adjusted EBITDA in 2021, and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. We currently identify a balanced level of opportunity and risk in the area of hedging (Glossary, from p. 139) due to increasing fuel and CO_2 prices. Further information can be found in the section "Accounting for financial instruments" in the notes to the consolidated financial statements at www.enbw.com/report2019-downloads.

10 **Power plant optimisation:** Following the conclusion of the hedging of generation activities, the Trading business unit will manage the further deployment of the power plants. This is being carried out as part of power plant optimisation on the forward market (Glossary, from p. 139), through the sale of system services (Glossary, from p. 139) and through placements on the spot and intraday trading platforms (Glossary, from p. 139). However, regulatory interventions continue to have a strong influence. In particular, fluctuating revenues from system services and volatility on the forward and spot markets (Glossary, from p. 139) could have both a positive or negative impact in the mid double-digit million euro range on the key performance indicator adjusted EBITDA in 2020 and 2021, and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. We currently identify a low level of risk and opportunity that is dependent on the development of market prices.

11 **Obligation to pay EEG cost allocations for the company's own and jointly owned power stations:** Both for its own power plants, including nuclear power plants, and for power plants in joint ownership, EnBW AG utilises the exemption from EEG cost allocations (Glossary, from p. 139) for end usage for the respective share of the power plants. There are a number of different arguments that suggest that the German Federal Network Agency and the transmission system operators could define the role of the operator differently. Possible back payments for EEG

cost allocations in previous years could have a negative impact in the low three-digit million euro range in 2020 and a negative impact in the high double-digit million euro range in 2021 on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. We currently identify an increased level of risk in this area.

12 **Obligation to pay EEG cost allocations for leasing models:** Certain virtual slices of power plants were leased to third parties in the past. EnBW as the operator and the third party as the co-operator have assumed up to now that, due to this leasing relationship, the third party was the plant operator at the relevant site according to the EEG and was permitted to consume electricity in the spatial context of their plants free of EEG cost allocations. In general, there is a risk with these leasing models that the transmission system operators will demand back payment for the EEG cost allocations. Possible back payments for EEG cost allocations in previous years could have a negative effect in the mid double-digit million euro range in 2020 on the key performance indicator adjusted EBITDA and thus an indirect impact on the key performance indicator internal financing capability via the adjusted retained cash flow and on the key performance indicator ROCE via the adjusted EBIT. We currently identify an increased level of risk in this area.

13 **Obligation to pay EEG cost allocations for dismantling:** In the existing planning of the dismantling costs for nuclear power plants, it was assumed that the so-called "self-supply entitlement" can be used for the electricity supplied to the blocks during the post-operation and dismantling stages. Therefore, the costings for the consumption of electricity do not contain any EEG cost allocations. There is a risk that the self-supply entitlement cannot be applied, which will result in increased dismantling costs. This could have a negative effect in 2020 and 2021 on the net debt in the low three-digit million euro range. We currently identify an increased level of risk in this area.

14 **Phase-out of coal power: early decommissioning of power plants:** The version of the Coal Phase-out Act adopted by the German cabinet and its framework parameters (plans for operators regarding replacement power plants and decommissioning) are open to varying interpretations with respect to the phase-out path. In general, the later decommissioning of brown coal power plants will mean that hard coal power plants are shut down more quickly and thus even new hard coal power plants will be removed from the grid earlier. The German government does not plan to provide compensation for any power plants decommissioned after 2027. We currently identify an increased level of risk in this area.

No opportunities or risks relevant to the report have been eliminated in comparison to the previous year.

Link to the key performance indicators

The top opportunities/risks can have an impact on our key performance indicators, whereby the effects on the non-financial key performance indicators are potential and long-term in nature and more difficult to measure. They have thus been shown less boldly in the following diagram. In the past financial year, these links were not monitored individually.

Linking the top opportunities/risks with the key performance indicators

Top opportunities/risks	Financial performance indicators A	B	C	Strategic performance indicators D	E	F	G	Non-financial performance indicators H	I	J	K	L	M	N
1 Market prices of financial investments														
2 Discount rate applied to pension provisions														
3 Liquidity		●	●											
4 Competitive environment	●	●	●	●				○	○	○	○			
5 Political and economic environment in Turkey			●					○						
6 Fluctuations in wind energy yield	●	●	●			●								○
7 Availability of nuclear power plants	●	●	●				●	○						
8 Operation and dismantling of nuclear power plants														
9 Hedging	●	●	●				●							
10 Power plant optimisation	●	●	●				●							○
11 Obligation to pay EEG cost allocations for the company's own and jointly owned power stations	●	●	●				●							
12 Obligation to pay EEG cost allocations for leasing models	●	●	●				●							
13 Obligation to pay EEG cost allocations for dismantling														
14 Phase-out of coal power: early decommissioning of power plants	○	○	○				○	○	○					○

Key performance indicators

- Cross-segment
- Sales
- Renewable Energies
- Generation and Trading

● Direct effect
○ Potential/long-term effect

A Adjusted EBITDA
B Internal financing capability
C ROCE

Total share of adjusted EBITDA:
D "Customer proximity"/ Sales
E Grids
F Renewable Energies
G Generation and Trading

H Reputation Index
I EnBW/Yello Customer Satisfaction Index
J SAIDI (electricity)
K Employee Commitment Index (ECI)

L LTIF for companies controlled by the Group/ LTIF overall
M Installed output of RE and share of generation capacity accounted for by RE
N CO_2 intensity

Overall assessment by the management

The risk situation for our company increased further in 2019. However, we also identify increased potential for opportunities at the same time. EnBW still faces numerous factors that pose a danger to planning certainty and thus the achievement of its economic targets, and that have high risk potential, such as regulatory requirements and legislation dealing with sustainable energy generation. This has far-reaching consequences for the operating business of the EnBW Group and places a burden on its earnings potential. The expansion of renewable energies is thus subject to factors that are just as difficult to plan for, as the latest developments in the area of energy generation from coal power plants demonstrate. The persisting competitive and market risks could influence the operating result, financial position and net assets.

At the same time, the Energiewende offers a multitude of opportunities to develop new models for future business segments. We will resolutely pursue these with our revised post-2020 strategy – which is based on the EnBW 2020 strategy that has been successfully implemented up to now. For example, we believe that there are opportunities in a diverse range of customer-oriented measures such as innovative energy solutions, as well as in the areas of electromobility and telecommunications. The commercial development of environmentally friendly and CO_2-efficient energy solutions will be resolutely pushed forward. The implementation of our post-2020 strategy aims to secure the future viability of the company and tap into this potential for growth.

No risks currently exist that might jeopardise the EnBW Group as a going concern.

Opportunity and risk position 2019

Remuneration report

The remuneration report summarises the principles relevant for determining the remuneration of the members of the Board of Management and explains the structure and level of both Board of Management and Supervisory Board remuneration. The remuneration report takes the recommendations of the German Corporate Governance Code (DCGK) in the version from 7 February 2017 and the German Accounting Standard (GAS) 17 (amended in 2010) into consideration in this respect. It also contains disclosures required by German commercial law to be included in the notes pursuant to section 314 HGB and the management report pursuant to section 315 HGB.

Board of Management remuneration

Based on proposals of the personnel committee, the Supervisory Board passes resolutions on the remuneration of the Board of Management, including the main contract elements, and reviews it on a regular basis. The criteria for determining appropriate remuneration include the responsibilities and performance of the members of the Board of Management, the economic situation, the success and sustainable development of the company and the relationship between the remuneration of the Board of Management and the remuneration of senior management and the workforce as a whole, as well as its development over time.

The Board of Management remuneration system in the following form has been valid since 1 January 2018. The definitions of the performance indicators were changed on 5 December 2018 with effect from 1 January 2019 (see explanation for the performance indicator EBT). The following diagram shows the structure of the total remuneration:

Components of target remuneration

The remuneration in the reporting year comprises basic remuneration, one-year and multi-year variable remuneration, as well as contributions as part of the company pension scheme. The ratio of single-year to multi-year variable remuneration is approx. 40% to 60%, depending on the individual target income for the member of the Board of Management, so that multi-year variable remuneration significantly outweighs single-year variable remuneration. In general, the variable remuneration components have a multi-year measurement basis in accordance with section 4.2.3 sentence 4 DCGK (in the version from 7 February 2017). The single-year variable remuneration component is described below as the Short Term Incentive (STI) while the multi-year variable remuneration component is described as the Long Term Incentive (LTI).

Fixed remuneration

The fixed remuneration comprises basic remuneration and fringe benefits.

Variable remuneration

Short-term variable remuneration (Short Term Incentive – STI)

The STI is paid for a period of one financial year in each case and paid out in the following financial year. The measurement period for the STI is the financial year for which it is paid.

The performance indicators for calculating the extent to which the target for the STI has been achieved are the following non-adjusted corporate performance indicators for the EnBW Group determined for one financial year:

- EBT (earnings before taxes), adjusted for earnings from the measurement of financial assets allocated to the financial result and outstanding items for derivatives allocated under trading as well as (since the resolution passed by the Supervisory Board of EnBW Energie Baden-Württemberg AG on 5 December 2018 with effect from 1 January 2019) for effects due to the adjustment of the nuclear provisions and to the change in the inflation rate for costs for the operation, dismantling and disposal of the nuclear power plants and in the discount rate
- FFO (funds from operations), adjusted for the items of income tax paid and income tax received

The Supervisory Board will define the target values for the performance indicators EBT and FFO each year before the start of the single-year measurement period.

The target value for the performance indicator EBT is generally defined on the basis of the figure actually achieved in the previous year, whereby the Supervisory Board can, at its own discretion, make the achievement of the target easier or more difficult by adjusting the figure from the previous year, taking into account extraordinary events in the previous year and general considerations on the development of earnings (target-actual comparison).

The target value for the performance indicator FFO corresponds to the value defined for the performance indicator in the single-year budget plan approved in the year before the start of the measurement period (plan-actual comparison).

The target remuneration for the STI consists of two equally weighted partial remuneration amounts (50 : 50). Each partial remuneration amount will be achieved if the target value for the respective performance indicator is achieved to 100%.

The extent to which the individual targets for each of the performance indicators are achieved is based, in the case of the underachievement or overachievement of the target value, on the ratio of the defined target value and the actual value for the performance indicator in the measurement period as defined in the consolidated financial statements for the year of payment.

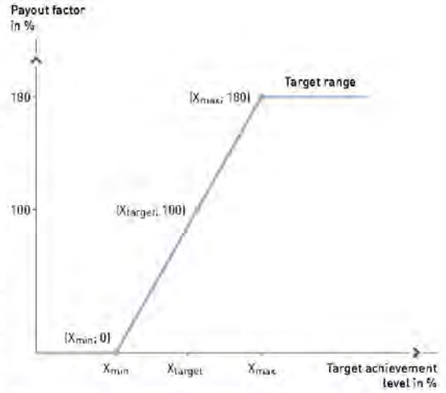
In the event of the overachievement of the target, the maximum possible remuneration that can be paid is limited to 180% of the partial target remuneration defined for each performance indicator (partial remuneration cap). The sum of both partial remuneration caps gives the total STI remuneration cap, which is 180% of the total amount for the STI target remuneration. In the event of the underachievement of the target, STI remuneration has no lower limit and can fall to an amount of €0.

When defining the target values for the short-term remuneration components, the Supervisory Board can also separately define a minimum and maximum value – at its own discretion – and thus the target range for each of the performance indicators on an annual basis.

The target range corresponds to a piecewise linear function, as shown in the adjacent diagram, which is determined by the value of the lowest achievement level X_{min} in relation to the lowest payout factor and the value of the highest achievement level X_{max} in relation to the highest payout factor. The relationship between the target value and the minimum and maximum values can be used to determine the lowest and highest achievement levels (X_{min} and X_{max}), respectively, while the relationship between the target remuneration and the minimum and maximum remuneration can be used to determine the lowest and highest payout factors, respectively. The partial amount of the short-term variable remuneration for each performance indicator based on the achievement level is calculated by multiplying the actual payout factor by the target remuneration defined for the respective performance indicator.

The actual payout factor is derived using the actual value achieved for the performance indicator and the piecewise linear function for the target range.

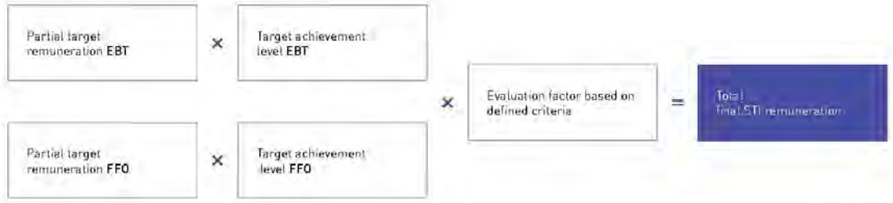
Target range



If the definitions for the performance indicators or accounting policies change, especially as a result of amendments to accounting standards, the target values and ranges will be adjusted correspondingly during the ongoing measurement period, insofar as these changes cause the relevant achievement level to differ by more than +/-5 percentage points in comparison to the value that would have been achieved without these changes. The sum of the partial remuneration amounts for each performance indicator gives the total preliminary STI remuneration.

The amount of the total preliminary STI remuneration, which is calculated exclusively on the basis of financial performance indicators, is then evaluated qualitatively using additional criteria. The adjustment is carried out by multiplying the total preliminary remuneration by a certain factor, whose lowest value is 0.7 and highest value is 1.3. Only one decimal place is used for this factor. If not defined otherwise by the Supervisory Board, the default factor is 1.0. The level of this factor is primarily determined by the Supervisory Board on the basis of an evaluation of criteria that are defined in advance on an annual basis. The sustainable growth of the company is an aspect that is particularly taken into account.

Calculation of the Short Term Incentive (STI)



In the event of extraordinary performance by the whole Board of Management or one member of the Board of Management, the Supervisory Board can at its own discretion grant special remuneration as part of the short-term variable remuneration.

As part of a final evaluation of the short-term variable remuneration, the Supervisory Board also has the discretionary power to appropriately adjust the amount of the STI to take into account extraordinary and unforeseeable events that cannot be controlled by the Board of Management that have had a considerable impact on the financial performance indicators on which the remuneration system is based. This discretionary power does not apply to the success targets or comparative values, the subsequent adjustment of which should be excluded according to the recommendations in section 4.2.3 (2) DCGK in the version from 7 February 2017.

If remuneration is granted in accordance with the two previous paragraphs, the total STI remuneration cap of 180% of the target STI remuneration still applies.

Long-term variable remuneration (Long Term Incentive – LTI)

The LTI is paid for a period of one financial year and paid out in the financial year following the conclusion of the measurement period. The measurement period for calculating the LTI covers a period of three financial years which includes the year for which the remuneration is being paid and the two subsequent financial years (performance period).

The performance indicators for calculating the extent to which the target for the LTI has been achieved are the following non-adjusted corporate performance indicators for the EnBW Group determined for one financial year in each case:

- EBT (earnings before taxes), adjusted for earnings from the measurement of financial assets allocated to the financial result and outstanding items for derivatives allocated under trading as well as (since the resolution passed by the Supervisory Board of EnBW Energie Baden-Württemberg AG on 5 December 2018 with effect from 1 January 2019) for effects due to the adjustment of the nuclear provisions and to the change in the inflation rate for costs for the operation, dismantling and disposal of the nuclear power plants and in the discount rate
- ROA (return on assets – return on the capital expenditure for intangible assets and property, plant and equipment based on the relationship between the non-adjusted EBIT [adjusted in line with the regulations for deviations in the performance indicator EBT] and the sum of the intangible assets and property, plant and equipment [adjusted for subsidies related to capital expenditure])

The target values for the performance indicators EBT and ROA for a performance period are defined by the Supervisory Board at its own discretion on an annual basis based on the corporate strategy and with effect for the next performance period that begins in the following year.

The target remuneration for the LTI consists of two equally weighted partial remuneration amounts (50 : 50). Each partial remuneration amount will be achieved if the target value for the respective performance indicator is achieved to 100%.

The extent to which the individual targets for each of the performance indicators are achieved is based, in the case of the underachievement or overachievement of the target value, on the ratio of the defined target value and the arithmetic mean of the actual values for the performance indicator as defined in the consolidated financial statements for each individual year of the performance period.

In the event of the overachievement of the target, the maximum possible remuneration that can be paid is limited to 180% of the partial target remuneration defined for each performance indicator (partial remuneration cap). The sum of both partial remuneration caps gives the total LTI remuneration cap, which is 180% of the total amount for the LTI target remuneration. In the event of the underachievement of the target, LTI remuneration has no lower limit and can fall to an amount of €0.

When defining the target values for the long-term remuneration components, the Supervisory Board can also separately define a minimum and maximum value – at its own discretion – and thus the target range for each of the performance indicators on an annual basis (see here the information provided for the STI).

The partial amount of the long-term variable remuneration for each performance indicator based on the achievement level is calculated by multiplying the actual payout factor by the target remuneration defined for the respective performance indicator. The actual payout factor is derived using the actual value achieved for the performance indicator and the piecewise linear function for the target range. The sum of the partial remuneration amounts for each performance indicator gives the total LTI remuneration.

If the definitions for the performance indicators or accounting policies change, especially as a result of amendments to accounting standards, the target values and ranges will be adjusted correspondingly during the ongoing measurement period, insofar as these changes cause the relevant achievement level to differ by more than +/-5 percentage points in comparison to the value that would have been achieved without these changes.

The regulations for the Board of Management remuneration system that were valid up to 31 December 2017 apply for the long-term variable remuneration in the measurement periods 2015 to 2017, 2016 to 2018 and 2017 to 2019, whereby the Supervisory Board of EnBW Energie Baden-Württemberg AG passed a resolution on 12 July 2018 that a remuneration cap for the total LTI of 110% of the total target remuneration will be introduced for the measurement periods 2016 to 2018 and 2017 to 2019. The LTI value appreciation bonus according to the old remuneration system consisted of a basic LTI, a competition component and a sustainability component. The total value appreciation bonus is the sum of the variable remuneration payments that are calculated from these three components. Target values, lower limits and upper limits are defined in advance by the Supervisory Board. The basic LTI is determined by the accumulated contribution to value added derived from the three-year medium-term planning. It is calculated from the difference between the performance indicators ROCE and WACC (weighted average cost of capital) multiplied by the average capital employed. The competition component measures the relative performance of the EnBW Group in the respective three-year performance period against a peer group of competitors on the basis of the value spread (= ROCE – WACC). The goal of the sustainable growth of the company in its strictest sense is also taken into account through the LTI sustainability component. In this component, the impact of the sustainable growth of the company on the areas of customers, employees and environment/society is taken into account. The extent to which the targets for all three components have been achieved is determined after the conclusion of the three-year planning period that acts as the basis for the calculations in each case. The Supervisory Board is entitled to adjust the targets if events arise that are not relevant to the ongoing management of the company and thus outside of the sphere of influence of the Board of Management. The size of the value appreciation bonus for 100% achievement of the targets, as well as the maximum and minimum values for the overachievement or underachievement of the agreed targets, can also be found in the table "Target income of members of the Board of Management". The amount based on the achievement of the relevant targets is paid out after the conclusion of the three-year measurement period. With a view to maintaining the previous level of target income, interest of 3% per annum is accrued on the calculated bonus payment for two years and is paid after the conclusion of the three-year calculation period.

Integrated Annual Report 2019 of EnBW

Remuneration of members of the Board of Management in the 2019 financial year

in €	Dr. Frank Mastiaux, Chairman		Dr. Bernhard Beck, LL.M. (until 30 June 2019)		Thomas Kusterer		Colette Rückert-Hennen (since 1 March 2019)		Dr. Hans-Josef Zimmer	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Fixed remuneration										
Basic remuneration	1,040,000	990,000	257,500	515,000	600,000	515,000	380,000	0	570,000	515,000
Other remuneration[1]	3,162	17,086	5,743	18,715	22,508	23,594	17,333	0	39,982	39,956
Variable remuneration										
Without long-term incentive	1,109,235	802,705	329,869	413,075	629,438	419,686	371,952	0	603,431	418,477
With long-term incentive[2]	1,198,817	1,198,817	732,021	732,021	625,931	625,931	0	0	625,931	625,931
Total	3,350,214	3,008,608	1,325,133	1,678,811	1,877,877	1,584,211	769,285	0	1,839,344	1,599,364

1 Other remuneration includes monetary benefits, particularly from the provision of company cars amounting to €75,994 (previous year: €98,344).
2 Current preliminary value appreciation bonus for the performance periods 2018 to 2020 (and 2019 to 2021) is €1,012,095 for Dr. Frank Mastiaux (€812,174), €527,925 for Dr. Bernhard Beck (€226,823), €527,925 for Thomas Kusterer (€471,939), €0 for Colette Rückert-Hennen (€302,431) and €527,925 for Dr. Hans-Josef Zimmer (€453,647). The exact level of the value appreciation bonus for the performance periods 2018 to 2020 (and 2019 to 2021) can only be determined following the end of the 2020 financial year (and 2021 financial year), and can fluctuate within the LTI spread pursuant to the following table Target income of members of the Board of Management.

Target income of members of the Board of Management[1]

in €	Dr. Frank Mastiaux Chief Executive Officer				Dr. Bernhard Beck, LL.M. (until 30 June 2019) Chief Personnel Officer				Thomas Kusterer Chief Financial Officer				Colette Rückert-Hennen (since 1 March 2019) Chief Human Resources Officer				Dr. Hans-Josef Zimmer Chief Technical Officer			
	2019	2019 (min.)	2019 (max.)	2018	2019	2019 (min.)	2019 (max.)	2018	2019	2019 (min.)	2019 (max.)	2018	2019	2019 (min.)	2019 (max.)	2018	2019	2019 (min.)	2019 (max.)	2018
Fixed remuneration	1,040,000	1,040,000	1,040,000	990,000	257,500	257,500	257,500	515,000	600,000	600,000	600,000	515,000	380,000	380,000	380,000	0	570,000	570,000	570,000	515,000
Fringe benefits	3,162	3,162	3,162	17,086	5,743	5,743	5,743	18,715	22,508	22,508	22,508	23,594	17,333	17,333	17,333	0	39,982	39,982	39,982	39,956
Total	1,043,162	1,043,162	1,043,162	1,007,086	263,243	263,243	263,243	533,715	622,508	622,508	622,508	538,594	397,333	397,333	397,333	0	609,982	609,982	609,982	554,956
One-year variable remuneration performance bonus	750,000	0	1,350,000	710,000	205,000	0	369,000	370,000	430,000	0	774,000	370,000	273,333	0	492,000	0	410,000	0	738,000	370,000
Multi-year variable remuneration LTI 2017 to 2019	1,026,000	0	1,130,000	1,026,000	630,000	0	690,000	630,000	535,000	0	590,000	535,000	0	0	0	0	535,000	0	590,000	535,000
Total	2,819,162	1,043,162	3,523,162	2,743,086	1,098,243	263,243	1,322,243	1,533,715	1,587,508	622,508	1,986,508	1,443,594	670,666	397,333	889,333	0	1,554,982	609,982	1,937,982	1,459,956
Pension expenses	526,560	526,560	526,560	546,663	46,950	46,950	46,950	112,847	369,898	369,898	369,898	380,180	0	0	0	0	242,401	242,401	242,401	235,725
Total remuneration	3,345,722	1,569,722	4,049,722	3,289,749	1,145,193	310,193	1,369,193	1,646,562	1,957,406	992,406	2,356,406	1,823,774	670,666	397,333	889,333	0	1,797,383	852,383	2,180,383	1,695,681

1 This table illustrates the remuneration in both the reporting year and previous year which arises given 100% achievement of the targets (target income) and the potential minimum and maximum remuneration for the financial year. Remuneration is described for Board of Management members who were appointed at least on a part-time basis in either the reporting year or previous year to the Board of Management at EnBW AG.

Payments to Board of Management members[1]

in €	Dr. Frank Mastiaux Chief Executive Officer		Dr. Bernhard Beck, LL.M. (until 30 June 2019) Chief Personnel Officer		Thomas Kusterer Chief Financial Officer		Colette Rückert-Hennen (since 1 March 2019) Chief Human Resources Officer		Dr. Hans-Josef Zimmer Chief Technical Officer	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Fixed remuneration	1,040,000	990,000	257,500	515,000	600,000	515,000	380,000	0	570,000	515,000
Fringe benefits	3,162	17,086	5,743	18,715	22,508	23,594	17,333	0	39,982	39,956
Total	1,043,162	1,007,086	263,243	533,715	622,508	538,594	397,333	0	609,982	554,956
One-year variable remuneration performance bonus	815,340	838,069	463,980	464,059	388,980	445,103	0	0	507,056	443,895
LTI 2015 to 2017		1,222,921		718,222		620,561		0		620,560
LTI 2016 to 2018	1,198,817		732,021		625,931		0	0	625,931	
Total	3,057,319	3,068,076	1,459,244	1,715,996	1,637,419	1,604,258	397,333	0	1,742,969	1,619,411
Pension expenses	526,560	546,663	46,950	112,847	369,898	380,180	0	0	242,401	235,725
Total remuneration	3,583,879	3,614,739	1,506,194	1,828,843	2,007,317	1,984,438	397,333	0	1,985,370	1,855,136

1 This table illustrates payments in both the reporting year and previous year pursuant to the German Income Tax Act (Einkommensteuergesetz). Earnings are described for members of the Board of Management who were appointed at least on a part-time basis in either the reporting year or previous year to the Board of Management of EnBW AG.

Compensation agreed with the Board of Management in the event of termination of service

The Supervisory Board of EnBW AG passed a new resolution on 18 March 2016 for the reorganisation of the company pension scheme for the Board of Management, effective as of 1 January 2016.

The regulations that were valid up until then can be found in the following publications:

- The company pension scheme that was valid for members of the Board of Management up until 31 December 2015 is presented in detail in the remuneration report for 2015, which was published in the combined management report of the EnBW Group and EnBW AG for the 2015 financial year.
- The regulations governing the transition of the company pension scheme that was valid for members of the Board of Management up until 31 December 2015 are presented in detail in the remuneration report for 2016, which was published in the combined management report of the EnBW Group and EnBW AG for the 2016 financial year.

The company pension scheme for the members of the Board of Management at the company is a modern and market-oriented pension system that provides members of the Board of Management with flexibility with respect to how the pension benefits are paid out. Following the introduction of the new system, there has been a shift from the previous defined benefit pension plan to a defined contribution pension model. In the new system, annual pension contributions will be paid that accrue interest at a rate oriented to the capital market. In order to ensure that the business risks associated with the pension scheme – especially the interest rate risks and biometric risks – remain calculable in the future, the interest model only contains a relatively low fixed interest entitlement that forms the basic interest rate plus a non-guaranteed surplus that is based on the actual development of interest rates in the life insurance industry.

During the term of the contract, EnBW pays fixed annual contributions to the pension scheme to an individual pension account. Pension contributions are paid for a maximum period of three terms of office (or 13 years in office). The fixed annual contributions are €230,000 for ordinary members of the Board of Management and €390,000 for the Chairman of the Board of Management. In the event of invalidity and as a supplementary risk benefit, age-dependent "notional" contributions will be paid on top of the balance already existing on the pension account until the member reaches the age of 60 – although at the most seven contributions will be paid.

As well as the annual contributions, interest is paid that is oriented to the market and consists of a guaranteed basic interest rate and a non-guaranteed surplus. The guaranteed interest is paid on every contribution in advance until the defined retirement age (63 years old). In addition, annual surplus payments can be paid above and beyond the guaranteed interest. These are based on the current average interest rate for capital investments actually achieved in the past year in the life insurance industry and are not guaranteed.

When the pension is due (age, invalidity, death), payment of the pension assets is generally made in five to ten instalments. Alternatively, a life-long pension payment can be made on the request of the member of the Board of Management – including a 60% entitlement for surviving dependants – or a mixed form of payment. Payment options are also available to the surviving dependants. If the member leaves the Board of Management before the pension is due, the pension account will remain at its current balance plus any surplus payments that are still due to be made.

The members of the Board of Management are entitled to make their own contributions to the pension scheme and supplement the pension provision financed by the employer. For this purpose, a proportion of the annual STI bonus up to a maximum sum of €50,000 p.a. can be converted into a pension entitlement. The regulations described above apply correspondingly to self-financed contributions.

Vested pension entitlements from the old pension scheme: As part of the transfer of the existing pension entitlements from the old pension scheme, the following vested pension entitlements – in accordance with the individual term of service in each case – were determined for the serving members of the Board of Management as of 31 December 2015: Dr. Frank Mastiaux: €80,676 p.a., Dr. Bernhard Beck (until 30/06/2019): €195,846 p.a., Thomas Kusterer: €89,523 p.a., Dr. Hans-Josef Zimmer: €174,636 p.a.

Individual pension contributions that deviate from the regulations for the new pension scheme: From 1 January 2016, the annual pension contributions and the interest on the contributions will generally be paid in accordance with the rules of the new system for new members of the Board of Management appointed in the future. However, a deviation was necessary for the then serving members of the Board of Management to take account of the transition to the new system, and individual pension contributions and an individual contribution period have been defined. The following individual pension contributions were determined: Dr. Frank Mastiaux: €360,000 p.a., Dr. Bernhard Beck (until 30/06/2019): €170,000 p.a., Thomas Kusterer: €215,000 p.a., Dr. Hans-Josef Zimmer: €120,000 p.a.

Regulation for limiting severance payments: No severance benefit obligations exist in the event of premature termination of service on the Board of Management. However, severance benefits may be payable on the basis of a severance agreement made with the individual. For agreements in place as of the reporting date, it was agreed that payments made to a member of the Board of Management on premature termination of his or her contract without serious cause, including fringe benefits, shall not exceed the value of two years' remuneration (severance cap) and compensate for no more than the remaining term of the contract. In concluding or extending contracts for the Board of Management, care is taken to ensure that no payments will be made to a member of the Board of Management in the event of the premature termination of the contract due to an important reason for which the member of the Board of Management is responsible.

In the event of the premature termination of service on the Board of Management due to a change of control, the possibility of a severance payment for the member of the Board of Management is limited to the pro rata share of annual remuneration(s) for the residual term of the contract. However, the severance payment must not exceed three times the annual remuneration.

In concluding or extending contracts for the Board of Management, it is agreed that settlement or severance payments should not exceed three times the annual remuneration and must not compensate for more than the residual term of the contract in the event of the premature termination of service on the Board of Management due to a change of control.

Temporary unavailability for work: In the event of temporary unavailability for work on the part of a member of the Board of Management due to illness or any other reason for which the member of the Board of Management is not responsible, remuneration will be paid for the first six months. The amount of variable remuneration will be calculated from the average of the last three years, and basic remuneration will be paid for a further six months. However, payments in the event of unavailability for work will be made no longer than until the end of the term of the service agreement.

The disclosures for the 2019 financial year concerning post-employment benefits are presented below. This presentation satisfies the requirements of section 285 No. 9a HGB. The disclosures include the vested entitlement as of the reporting date, the annual expenses for pension obligations and the present value of the pension obligations earned as of the reporting date.

Post-employment benefits

In €	Dr. Frank Mastiaux, Chairman		Dr. Bernhard Beck, LL.M. (until 30 June 2019)		Thomas Kusterer		Colette Rückert-Hennen (since 1 March 2019)		Dr. Hans-Josef Zimmer	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Vested benefit from previous entitlement p.a.	80,676	80,676	195,846	195,846	89,523[1]	89,523[1]	0	0	174,636	174,636
Capital from contribution model	1,767,878	1,296,167	379,626	373,116	1,096,171	777,533	198,025	0	513,063	384,086
Annual expenses for pension obligations[1]	526,560	546,663	46,950	112,847	369,898	380,180	0	0	242,401	235,725
Present value of pension obligations (defined benefit obligations)	4,391,428	3,396,435	5,646,078	5,216,617	4,096,394	3,151,738	244,894	0	5,599,845	4,845,098

1 Including an addition to capital for pension benefits totalling €101,649 (previous year: €126,126). This is a pension commitment financed through voluntarily waiving part of the salary.
2 In addition to the vested pension, Thomas Kusterer also has a special capital component of €135,000.

Annual expenses for pension obligations include both service and interest costs. There are defined benefit obligations in accordance with IFRS of €20.0 million for the current members of the Board of Management (previous year: €16.6 million).

Former members of the Board of Management and their surviving dependants received total remuneration of €5.2 million in the 2019 financial year (previous year: €4.8 million). These pension payments are indexed to the percentage change in remuneration according to the collective bargaining agreement.

There are defined benefit obligations to former members of the Board of Management and their surviving dependants in accordance with IFRS of €114.8 million (previous year: €99.0 million).

As in the previous year, no loans or advances to members of the Board of Management existed at the end of the financial year.

Supervisory Board remuneration

In response to a proposal of the Board of Management and Supervisory Board, the Annual General Meeting on 25 April 2013 revised the regulations for Supervisory Board remuneration. Accordingly, members of the Supervisory Board each receive fixed remuneration of €40,000 for the entire 2019 financial year, payable at the end of the financial year in addition to reimbursement of their expenses.

The Chairman of the Supervisory Board receives twice the above, while the Deputy Chairman of the Supervisory Board receives one and a half times the aforementioned amount.

Members of the Supervisory Board receive fixed remuneration of €7,500 each per financial year to offset the additional work involved in any activities in one or more Supervisory Board committees. The Chairperson of one or more committees receives twice the amount of the remuneration for the committee work, unless the respective committee has not met in the financial year concerned. Supervisory Board members who have only belonged to the Supervisory Board or a committee or acted as a Chairperson for part of the financial year are paid remuneration proportionate to the duration of their office or their position in that financial year.

In addition, members of the Supervisory Board receive an attendance fee of €750 for Supervisory Board meetings and committee meetings. Attendance at preliminary meetings is remunerated with €250 per meeting, but only for one preliminary meeting per Supervisory Board meeting.

According to this remuneration system, the members of the Supervisory Board will receive the total remuneration (including attendance fees and remuneration for offices held at subsidiaries) shown in the table for the 2019 financial year.

The disclosures for the remuneration for members of the Supervisory Board include attendance fees amounting to €237,000 (previous year: €201,500) and the remuneration for offices held at subsidiaries include attendance fees totalling €19,575 (previous year: €14,390). No other remuneration or benefits for services rendered personally, in particular consulting or mediation services, were paid to members of the Supervisory Board, nor did they receive any loans or advances in the reporting year.

The members of the Board of Management and the Supervisory Board are covered by adequate D&O insurance concluded in the interest of EnBW. For this D&O insurance, the deductible for members of the Board of Management and the Supervisory Board is 10% of the claim in each case, but no more than one and a half times the fixed annual remuneration.

Total remuneration for members of the Supervisory Board of EnBW AG

in €	Fixed remuneration (incl. attendance fees)		Remuneration for offices held at subsidiaries		Total	
	2019	2018	2019	2018	2019	2018
Lutz Feldmann, Chairman	107,750	110,750	0	0	107,750	110,750
Dietrich Herd, Deputy Chairman	85,250	84,750	9,500	9,500	94,750	94,250
Achim Binder (since 1 January 2019)	64,500	0	10,069	0	74,569	0
Dr. Dietrich Birk	58,750	57,250	0	0	58,750	57,250
Stefanie Bürkle[1]	55,750	52,000	0	0	55,750	52,000
Stefan Paul Hamm[2]	64,500	64,000	7,513	7,513	72,013	71,513
Michaela Kräutter[2]	57,750	46,000	7,513	950	65,263	46,950
Silke Krebs (until 31 December 2018)	0	56,500	0	0	0	56,500
Marianne Kugler-Wendt[3]	57,750	56,500	6,400	6,100	64,150	62,600
Thomas Landsbek	58,500	46,000	0	0	58,500	46,000
Dr. Hubert Lienhard	64,503	54,250	0	0	64,503	54,250
Marika Lulay (since 14 February 2019)	49,274	0	0	0	49,274	0
Sebastian Maier (until 31 December 2018)	0	56,500	0	6,615	0	63,115
Arnold Messner (until 31 December 2018)	0	63,750	0	8,113	0	71,863
Dr. Wolf-Rüdiger Michel[1]	57,250	54,250	0	0	57,250	54,250
Gunda Röstel	65,500	64,000	11,313	11,513	76,813	75,513
Jürgen Schäfer (since 1 January 2019)	56,750	0	0	0	56,750	0
Klaus Schörnich (until 30 September 2018)	0	42,777	0	200	0	42,977
Heinz Seiffert[1] (until 31 December 2018)	0	55,750	0	0	0	55,750
Harald Sievers (since 1 January 2019)	55,000	0	0	0	55,000	0
Edith Sitzmann[2]	61,750	54,250	0	0	61,750	54,250
Ulrike Weindel	60,750	56,500	0	0	60,750	56,500
Lothar Wölfle[1]	63,250	63,250	0	0	63,250	63,250
Dr. Bernd-Michael Zinow	68,250	66,250	12,000	12,800	80,250	79,050
Total	1,269,527	1,219,000	78,113	65,883	1,347,640	1,284,883

1. The regulations in the State Civil Service Act (Landesbeamtengesetz) and the Ancillary Activities Ordinance (Landesnebentätigkeitsverordnung – LNTVO) of the Federal State of Baden-Württemberg for relinquishing remuneration from secondary employment to the administrative district apply. The regulations in LBeamtVG apply instead for Mr Seiffert.
2. In accordance with the regulations of the German Federation of Trade Unions (DGB) on the transfer of supervisory board remuneration, the remuneration is transferred to the Hans Böckler Foundation and ver.di GewerkschaftsPolitische Bildung gGmbH.
3. The members of the state government and the state secretaries are obligated to relinquish any remuneration, including attendance fees, received for membership of supervisory boards, executive boards, advisory boards and all other comparable boards to which they have been appointed in connection with their office or to which they are assigned as a member of the state government, applying section 5 LNTVO analogously, provided that the remuneration received in the calendar year exceeds the gross total for level "B6 and higher" (currently €6,100) (council of ministers resolution dated 05/07/2016).

Disclosures pursuant to sections 289 a (1) and 315 a (1) German Commercial Code (HGB) and explanatory report of the Board of Management

In the following, the Board of Management provides the information prescribed by sections 289 a (1) and 315 a (1) HGB and explains this in accordance with section 176 (1) sentence 1 AktG.

Composition of the subscribed capital and shares in capital

The composition of the subscribed capital is described and explained in the notes to the annual and consolidated financial statements in the section "Equity". Direct or indirect shares in capital which exceed 10% of the voting rights are described and explained in the notes to the annual financial statements in the sections "Shareholder structure" and "Disclosures pursuant to sections 33 ff. German Securities Trading Act (WpHG)" and the notes to the consolidated financial statements in section "Related parties (entities)". Information and explanations about the company's treasury shares are presented below and can be found in note 19 of the notes to the consolidated financial statements at www.enbw.com/report2019-downloads.

Restrictions relating to voting rights or transferability of shares

Agreements were reached on 22 December 2015 between, on the one hand, Zweckverband Oberschwäbische Elektrizitätswerke (Zweckverband OEW) and OEW Energie-Beteiligungs GmbH and, on the other, the Federal State of Baden-Württemberg, NECKARPRI GmbH and NECKARPRI-Beteiligungsgesellschaft mbH, which include clauses relating to restrictions of authorisation over EnBW shares held by these parties and a general mutual obligation of both main shareholders to maintain parity investment relationships in EnBW with respect to each other. Restrictions relating to voting rights no longer exist to the knowledge of the Board of Management since the aforementioned direct and indirect EnBW shareholders annulled a shareholder agreement on 22 December 2015 that had previously existed between them.

Legal provisions and statutes on the appointment and dismissal of members of the Board of Management and amendments to the Articles of Association

Pursuant to section 84 AktG in conjunction with section 31 MitbestG, responsibility for the appointment and dismissal of members of the Board of Management rests with the Supervisory Board. This competence is stipulated in article 7 (1) sentence 2 of the Articles of Association of EnBW. If, under exceptional circumstances, a necessary member of the Board of Management is missing, section 85 AktG requires that a member of the Board of Management be appointed by the court in urgent cases. The Annual General Meeting has the right to make changes to the Articles of Association in accordance with section 119 (1) No. 6 AktG. The specific rules of procedure are contained in sections 179 and 181 AktG. For practical reasons, the right to amend the Articles of Association was transferred to the Supervisory Board where such amendments affect the wording only. This option pursuant to section 179 (1) sentence 2 AktG is embodied in article 18 (2) of the Articles of Association. Pursuant to section 179 (2) AktG, resolutions by the Annual General Meeting to amend the Articles of Association require a majority of at least three quarters of the capital stock represented when passing the resolution, unless the Articles of Association stipulate a different majority, which, however, for any amendment to the purpose of the company can only be higher. Pursuant to article 18 (1) of the Articles of Association, resolutions by the Annual General Meeting require a simple majority of the votes cast, unless legal regulations or the Articles of Association stipulate otherwise. If the law requires a larger majority of the votes cast or of the capital stock represented when passing the resolution, the simple majority suffices in those cases where the law leaves the determination of the required majority to the Articles of Association.

Authority of the Board of Management regarding the possibility to issue or redeem shares

No authorised or conditional capital nor any authorisation of the Annual General Meeting pursuant to section 71 (1) No. 8 AktG for the purchase of treasury shares by the company currently exists at EnBW. Therefore, the company may only acquire treasury shares on the basis of other reasons justifying such purchases in accordance with section 71 (1) AktG. As of 31 December 2019, the company holds 5,749,677 treasury shares which were purchased on the basis of earlier authorisations in accordance with section 71 (1) No. 8 AktG. The company's treasury shares can be sold on the stock exchange or by public offer to all company shareholders. The use of treasury shares, in particular their sale, in any other way can only occur within the scope of the resolution issued by the Annual General Meeting on 29 April 2004. The treasury shares held by EnBW do not grant the company any rights in accordance with section 71b AktG.

Material agreements of the company subject to the condition of a change of control as a result of a takeover bid and the resulting effects

The following EnBW agreements are subject to the condition of a change of control following a takeover bid as defined by sections 289a (1) No. 8 and 315a (1) No. 8 HGB:

A syndicated credit line of €1.5 billion, which had not been drawn as of 31 December 2019, can be terminated by the lenders and become due for repayment given a change of control at EnBW. This does not apply if the purchaser of the shares is the Federal State of Baden-Württemberg or Zweckverband OEW or another German state-owned public law legal entity.

A promissory note loan of €300 million taken out by Stadtwerke Düsseldorf AG (SWD AG) relating to the financing of their CCGT power plant, two bilateral bank loans together totalling around €44 million and a syndicated loan, of which €182 million was drawn as of 31 December 2019, can each become due for repayment given a change of control at SWD AG, including an indirect change of control. This does not apply if, after the change of control, the majority of shares in SWD AG are held directly or indirectly by German government entities and the City of Düsseldorf holds at least 25.05% of the shares in SWD AG.

A syndicated credit line with a volume of €700 million agreed with VNG AG, of which around €390 million was drawn as of 31 December 2019, can become due for repayment given a change of control at VNG, including an indirect change of control. This does not apply if, after the change of control, the majority of shares in VNG continue to be held directly by German public sector shareholders or indirectly by these shareholders via controlled legal entities.

A bond of JPY 20 billion issued on 12 December 2008 under the Debt Issuance Programme (Glossary, from p. 139) can be terminated by the lenders and become due for repayment given a change of control at EnBW. This does not apply if the purchaser of the shares is EDF (whose legal successor as shareholder has been the Federal State of Baden-Württemberg since February 2011) or Zweckverband OEW or another German state-owned public law corporation. Two bilateral long-term bank loans, drawn to the value of €350 million and around €318 million as of 31 December 2019, can be terminated by the lender and become due for repayment given a change of control at EnBW, provided the change of control has a negative effect on repayment of the loan in future. This does not apply if the purchaser of the shares is EDF (whose legal successor as shareholder has been the Federal State of Baden-Württemberg since February 2011) or Zweckverband OEW.

Compensation agreements

Compensation agreements pursuant to sections 289 a (1) No. 9 and 315 a (1) No. 9 HGB concluded with members of the Board of Management to cover any case of a change of control are described and explained in the remuneration report, which is part of the management report.

Nos. 4 and 5 of sections 289 a (1) and 315 a (1) HGB were not relevant for EnBW in the 2019 financial year.

Index for the non-financial declaration of the EnBW Group and EnBW AG

In accordance with sections 315b and 289b HGB, the EnBW Group and EnBW AG have been obligated to issue a non-financial declaration since the 2017 financial year. We comply with the requirements by fully integrating the non-financial declaration into the Integrated Annual Report as part of the combined management report of the EnBW Group and EnBW AG. For all of the aspects required by the act and also other aspects that are material from the perspective of EnBW, such as standing in society, customer satisfaction and supply quality, we fulfil the obligations by providing information about concepts and processes, measures, performance indicators and risks.

Index for the non-financial declaration of the EnBW Group and EnBW AG

Themes	Aspects	Section	Page reference
Compliance	> Fighting corruption and bribery	> Corporate governance > In dialogue with our stakeholders > Report on opportunities and risks	page 49 f. page 55 page 103
Social engagement	> Social issues	> In dialogue with our stakeholders > Report on opportunities and risks	page 53 ff. page 103
Procurement	> Respect for human rights	> In dialogue with our stakeholders > Procurement > Report on opportunities and risks	page 52 ff. page 59 ff. page 103
Reputation	> Standing in society	> In dialogue with our stakeholders > The EnBW Group > Forecast > Report on opportunities and risks	page 52 ff. page 81 page 98 page 103
Customer proximity	> Customer satisfaction	> In dialogue with our stakeholders > The EnBW Group > Forecast > Report on opportunities and risks	page 52 ff. page 81 f. page 98 f. page 103
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Expansion of renewable energies	> Environmental issues	> Business model > Strategy, goals and performance management system > In dialogue with our stakeholders > The EnBW Group > Forecast > Report on opportunities and risks	page 32 f. page 41 ff. page 51 ff. page 87 f. page 99 page 104
Climate protection	> Environmental issues	> Business model > Strategy, goals and performance management system > In dialogue with our stakeholders > General conditions > The EnBW Group > Forecast > Report on opportunities and risks	page 32 f. page 41 ff. page 51 ff. page 63 page 88 ff. page 99 page 104

The non-financial declaration is issued jointly for the EnBW Group and EnBW AG. Any differences between statements made for the Group and for EnBW AG are clearly identified in the text. Information on the business model can be found in the section "Business model" (p. 32 ff.). We have not identified any material individual risks in the 2019 financial year that have a very high probability of a serious negative impact in relation to the relevant non-financial issues.

The reporting of sustainability topics has been based for many years on the standards issued by the Global Reporting Initiative (GRI). Since the 2017 financial year, we have based our reporting on the GRI standards – "Core" option, including the Electric Utilities Sector Supplement (www.enbw.com/gri-index). Our sustainability reporting also complies with the requirements of the Communication on Progress for the UN Global Compact.

Information on the diversity concept can be found in the declaration of corporate management at www.enbw.com/corporate-governance.

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft is commissioned to audit the consolidated financial statements and the combined management report including the contents of the non-financial declaration with reasonable assurance and then to issue an audit opinion following the conclusion of the audit. The full consolidated financial statements and the combined management report for the 2019 financial year are accessible to the public on the website at www.enbw.com/report2019-downloads.

Index for the Task Force on Climate-related Financial Disclosures (TCFD)

EnBW started to implement the recommendations from the TCFD in 2017 (Glossary, from p. 139). This work has continued in the 2019 financial year and is being continuously developed in each of the four key elements. The index also includes other themes besides these where we are working on the further implementation of the TCFD recommendations.

Task Force on Climate-related Financial Disclosures (TCFD)

TCFD element	Themes	Section	Page reference
Governance	> Corporate management	> Corporate governance	page 48
	> Materiality analysis	> In dialogue with our stakeholders	page 51 f.
	> Investment guidelines	> The EnBW Group	page 76
	> Climate protection initiatives	> In dialogue with our stakeholders, General conditions	pages 52 and 63
	> Overall assessment by the management	> Overall assessment of the economic situation of the Group	page 95
	> Board of Management remuneration	> Remuneration report	page 110 ff.
Strategy	> Robustness of business model/scenario analysis	> Business model	page 33
	> Strategy, strategic development	> Strategy, goals and performance management system	page 41 ff.
	> Interdependencies	> Strategy, goals and performance management system	page 46 f.
	> Materiality analysis	> In dialogue with our stakeholders	page 51 f.
	> Green bonds	> The EnBW Group	page 74
	> General conditions, climate protection	> General conditions	page 63
Risk management	> Integrated opportunity and risk management including opportunity and risk map	> Report on opportunities and risks	page 100 ff.
	> Environment goal dimension: opportunities and risks	> Report on opportunities and risks	page 104
Performance indicators and targets	> Sustainability ratings	> In dialogue with our stakeholders	page 53
	> Key performance indicators and long-term targets	> Strategy, goals and performance management system	page 44 ff.
	> Environment goal dimension: key performance indicators and other performance indicators	> The EnBW Group	page 87 ff.

Declaration of the legal representatives

We assure to the best of our knowledge that, in accordance with the applicable accounting principles, the annual and consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the company and the Group, and that the combined management report gives a true and fair view of the business development including the result and situation of the company and the Group and also describes the significant opportunities and risks relating to the anticipated development of the company and the Group.

Karlsruhe, 4 March 2020

EnBW Energie Baden-Württemberg AG

Dr. Mastiaux — Kusterer

Rückert-Hennen — Dr. Zimmer

Condensed financial statements of the EnBW Group

Note

The full set of financial statements of the EnBW Group 2019 including the notes to the consolidated financial statements and the unqualified auditor's report form part of the Integrated Annual Report 2019 – Extended Version, which is available in PDF format on our website at www.enbw.com/report2019-downloads.

Income statement

in € million[1]	Notes	2019	2018	Change in %
Revenue including electricity and energy taxes		19,270.7	21,391.0	-9.9
Electricity and energy taxes		-505.7	-575.6	-12.1
Revenue	(1)	**18,765.0**	**20,815.4**	**-9.9**
Changes in inventories		18.3	13.9	31.7
Other own work capitalised		148.1	102.1	45.1
Other operating income	(2)	1,544.0	1,185.1	30.3
Cost of materials	(3)	-14,841.1	-16,838.1	-11.9
Personnel expenses	(4)	-2,007.0	-1,871.8	7.2
Impairment losses	(25)	-89.2	-36.7	143.1
Other operating expenses	(5)	-1,292.9	-1,280.3	1.0
EBITDA		**2,245.2**	**2,089.6**	**7.4**
Amortisation and depreciation	(6)	-1,648.5	-1,213.8	35.8
Earnings before interest and taxes (EBIT)		**596.7**	**875.8**	**-31.9**
Investment result	(7)	401.3	100.9	–
of which net profit/loss from entities accounted for using the equity method		(28.9)	(-24.1)	–
of which other profit/loss from investments		(372.4)	(125.0)	–
Financial result	(8)	-95.8	-380.4	-74.8
of which finance income		(537.1)	(295.5)	(81.8)
of which finance costs		(-632.9)	(-675.9)	(-6.4)
Earnings before tax (EBT)		**902.2**	**596.3**	**51.3**
Income tax	(9)	2.1	-128.7	-101.6
Group net profit		**904.3**	**467.6**	**93.4**
of which profit/loss shares attributable to non-controlling interests		(170.1)	(133.4)	(27.5)
of which profit/loss shares attributable to the shareholders of EnBW AG		(734.2)	(334.2)	(119.7)
EnBW AG shares outstanding (million), weighted average		**270.855**	**270.855**	**0.0**
Earnings per share from Group net profit (€)[2]	(24)	**2.71**	**1.23**	**119.7**

1 The figures for the previous year have been restated. Further disclosures are presented in the notes under "Changes in accounting policies." We publish the full set of consolidated financial statements at www.enbw.com/report2019-downloads.

2 Diluted and basic; in relation to profit/loss attributable to the shareholders of EnBW AG.

Statement of comprehensive income

in € million[1]	Notes	2019	2018	Change in %
Group net profit		**904.3**	**467.6**	**93.4**
Revaluation of pensions and similar obligations	(20)	-1,028.3	-110.0	–
Entities accounted for using the equity method	(13)	0.3	0.0	–
Income taxes on other comprehensive income	(9)	300.8	31.8	–
Total of other comprehensive income and expenses without future reclassifications impacting earnings		**-727.8**	**-78.2**	–
Currency translation differences		24.2	5.1	–
Cash flow hedge	(25)	131.8	-143.8	–
Financial assets at fair value in equity	(14)	18.7	-16.2	–
Entities accounted for using the equity method	(13)	-2.9	1.0	–
Income taxes on other comprehensive income	(9)	-49.6	81.5	–
Total of other comprehensive income and expenses with future reclassifications impacting earnings		**122.2**	**-72.4**	–
Total other comprehensive income		**-605.6**	**-150.6**	–
Total comprehensive income		**298.7**	**317.0**	**-5.8**
of which profit/loss shares attributable to non-controlling interests		(153.4)	(132.6)	15.7
of which profit/loss shares attributable to the shareholders of EnBW AG		(145.3)	(184.4)	-21.2

1 Further information is available in the notes under (19) "Equity". We publish the full set of consolidated financial statements at www.enbw.com/report2019-downloads

Balance sheet

in € million[1]	Notes	31/12/2019	31/12/2018
Assets			
Non-current assets			
Intangible assets	(10)	3,347.4	1,748.7
Property, plant and equipment	(11),(12)	18,552.7	15,867.5
Entities accounted for using the equity method	(13)	1,064.0	1,600.2
Other financial assets	(14)	6,356.9	5,426.5
Trade receivables	(15)	331.3	302.0
Other non-current assets	(16)	756.2	741.8
Deferred taxes	(21)	1,214.0	1,059.3
		31,622.5	**26,746.0**
Current assets			
Inventories		1,066.1	1,192.0
Financial assets	(17)	448.6	774.7
Trade receivables	(15)	3,976.8	4,515.7
Other current assets	(16)	4,809.4	3,788.9
Cash and cash equivalents	(18)	1,363.8	2,249.4
		11,664.7	**12,520.7**
Assets held for sale	(23)	0.9	342.3
		11,665.6	**12,863.0**
		43,288.1	**39,609.0**
Equity and liabilities			
Equity	(19)		
Shares of the shareholders of EnBW AG			
Subscribed capital		708.1	708.1
Capital reserve		774.2	774.2
Revenue reserves		5,234.5	4,676.4
Treasury shares		-204.1	-204.1
Other comprehensive income		-2,565.6	-1,976.7
		3,947.1	**3,977.9**
Non-controlling interests		3,498.0	2,295.4
		7,445.1	**6,273.3**
Non-current liabilities			
Provisions	(20)	14,333.1	13,246.0
Deferred taxes	(21)	890.0	774.8
Financial liabilities	(22)	7,360.7	6,341.4
Other liabilities and subsidies	(22)	2,155.9	1,674.7
		24,739.7	**22,036.9**
Current liabilities			
Provisions	(20)	1,335.9	1,549.9
Financial liabilities	(22)	830.2	654.8
Trade payables	(22)	4,055.1	5,039.8
Other liabilities and subsidies	(22)	4,682.1	4,033.1
		11,103.3	**11,277.6**
Liabilities directly associated with assets classified as held for sale	(23)	0.0	21.2
		11,103.3	**11,298.8**
		43,288.1	**39,609.0**

1 We publish the full set of consolidated financial statements at www.enbw.com/report2019-downloads

Cash flow statement

in € million[1]	Notes	2019	2018
1. Operating activities			
EBITDA		2,245.2	2,089.6
Changes in provisions	(20)	-476.0	-394.6
Result from disposals of assets	(2),(5)	-18.5	-88.4
Other non-cash-relevant expenses/income	(2),(3),(5)	64.8	-27.6
Change in assets and liabilities from operating activities		-759.4	-480.7
Inventories		(-160.4)	(-201.7)
Net balance of trade receivables and payables	(15),(22)	(-517.8)	(49.6)
Net balance of other assets and liabilities	(16),(22)	(-81.2)	(-328.6)
Income tax paid	(9),(16),(22)	-409.1	-270.7
Cash flow from operating activities		707.0	827.6
2. Investing activities			
Capital expenditure on intangible assets and property, plant and equipment	(10),(11)	-1,947.8	-1,369.5
Disposals of intangible assets and property, plant and equipment	(10),(11)	50.1	77.3
Cash received from subsidies for construction cost and investments	(22)	90.4	86.1
Acquisition of subsidiaries, entities accounted for using the equity method and interests in joint operations	(13)	-1,135.1	-297.6
Sale of subsidiaries, entities accounted for using the equity method and interests in joint operations	(13)	68.3	297.9
Cash paid for investments in other financial assets	(14),(17)	-722.6	-750.4
Cash received from the sale of other financial assets	(14),(17)	1,014.0	765.3
Cash received/paid for investments in connection with short-term finance planning	(17),(22)	-20.9	10.5
Interest received	(8)	111.6	94.4
Dividends received	(7)	174.9	190.2
Cash flow from investing activities		-2,317.1	-895.8
3. Financing activities			
Interest paid for financing activities	(8)	-214.9	-247.0
Dividends paid	(19)	-316.5	-312.8
Cash received for changes in ownership interest without loss of control	(19)	23.4	4.6
Cash paid for changes in ownership interest without loss of control		-0.8	0.0
Increase in financial liabilities	(22)	3,148.6	1,125.1
Repayment of financial liabilities	(22)	-2,038.7	-1,425.4
Repayment of lease liabilities	(22)	-109.3	–
Payments from alterations of capital in non-controlling interests	(19)	59.1	-51.8
Cash flow from financing activities		551.9	-907.3
Net change in cash and cash equivalents	(18)	-1,058.2	-975.5
Change in cash and cash equivalents due to changes in the consolidated companies	(18)	169.3	6.6
Net foreign exchange difference	(18)	3.1	5.5
Change in cash and cash equivalents due to risk provisions	(18)	0.2	0.2
Change in cash and cash equivalents	(18)	-885.6	-963.2
Cash and cash equivalents at the beginning of the period	(18)	2,249.4	3,212.6
Cash and cash equivalents at the end of the period	(18)	1,363.8	2,249.4

1 Further information is available in the notes under (32) "Notes to the cash flow statement". We publish the full set of consolidated financial statements at www.enbw.com/report2019-downloads

Statement of changes in equity

in € million[1]	Other comprehensive income										
	Subscribed capital and capital reserve[2]	Revenue reserves	Treasury shares	Revaluation of pensions and similar obligations	Currency translation differences	Cash flow hedge	Financial assets at fair value in equity	Entities accounted for using the equity method	Shares of the shareholders of EnBW AG	Non-controlling interests	Total
Notes				(20)		(25)	(14)	(13)			
As of 01/01/2018	**1,482.3**	**4,479.3**	**-204.1**	**-1,716.9**	**-12.0**	**-109.2**	**10.9**	**0.3**	**3,930.6**	**2,327.2**	**6,257.8**
Other comprehensive income				-74.6	3.2	-68.2	-11.2	1.0	-149.8	-0.8	-150.6
Group net profit		334.2							334.2	133.4	467.6
Total comprehensive income	**0.0**	**334.2**	**0.0**	**-74.6**	**3.2**	**-68.2**	**-11.2**	**1.0**	**184.4**	**132.6**	**317.0**
Dividends		-135.4							-135.4	-139.2	-274.6
Other changes[3]		-1.7							-1.7	-25.2	-26.9
As of 31/12/2018	**1,482.3**	**4,676.4**	**-204.1**	**-1,791.5**	**-8.8**	**-177.4**	**-0.3**	**1.3**	**3,977.9**	**2,295.4**	**6,273.3**
Other comprehensive income				-712.0	17.3	95.8	13.3	-3.3	-588.9	-16.7	-605.6
Group net profit		734.2							734.2	170.1	904.3
Total comprehensive income	**0.0**	**734.2**	**0.0**	**-712.0**	**17.3**	**95.8**	**13.3**	**-3.3**	**145.3**	**153.4**	**298.7**
Dividends		-176.1							-176.1	-121.9	-298.0
Other changes[3]									0.0	1,171.1	1,171.1
As of 31/12/2019	**1,482.3**	**5,234.5**	**-204.1**	**-2,503.5**	**8.5**	**-81.6**	**13.0**	**-2.0**	**3,947.1**	**3,498.0**	**7,445.1**

1 Further information is available in the notes under (19) "Equity". We publish the full set of consolidated financial statements at www.enbw.com/report2019-downloads
2 Of which subscribed capital €703.1 million (31/12/2018: €708.1 million, 01/01/2018: €708.1 million) and capital reserve €774.2 million (31/12/2018: €774.2 million, 01/01/2018: €774.2 million).
3 Of which changes in revenue reserves due to changes in ownership interest in subsidiaries without loss of control of 0.0 million (previous year €-1.7 million). Of which changes in non-controlling interests due to changes in ownership interest in subsidiaries without loss of control of €26.0 million (previous year €5.2 million).

Information on the result of the audit of the consolidated financial statements and the combined management report of the company and the Group for the 2019 financial year

The condensed financial statements for the 2019 financial year that form part of the Integrated Annual Report do not include the notes to the consolidated financial statements and the declaration of corporate management 2019 of the EnBW Group and EnBW AG including the corporate governance report 2019. The full set of consolidated financial statements – including the notes to the consolidated financial statements – and the combined management report for the company and the Group were both audited for the 2019 financial year by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft as the auditor and Group auditor elected by the Annual General Meeting of EnBW Energie Baden-Württemberg AG on 8 May 2019. Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft arrived at the overall conclusion that the audit did not lead to any reservations and issued an unqualified audit opinion. The full set of consolidated financial statements and the combined management report for the company and the Group, both for the 2019 financial year, as well as the unqualified audit opinion issued by the auditor, can be accessed on the website of EnBW Energie Baden-Württemberg AG.

Corporate bodies

The Supervisory Board

Members

- **Lutz Feldmann, Bochum**
  Independent business consultant
  Chairman

- **Dietrich Herd, Philippsburg**
  Chairman of the Group works council for the EnBW Group as well as Chairman of the central works council for the "generation sector" and Chairman of the Philippsburg nuclear power plant works council for the "generation sector" of EnBW Energie Baden-Württemberg AG, Karlsruhe, Deputy Chairman

- **Achim Binder, Stuttgart**
  Deputy Chairman of the Group works council for the EnBW Group, Chairman of the central works council "grids sector" of EnBW Energie Baden-Württemberg AG and Chairman of the regional service works council of Netze BW GmbH, Stuttgart

- **Dr. Dietrich Birk, Göppingen**
  Managing Director of the Verband Deutscher Maschinen- und Anlagenbau e.V. (VDMA), Regional Association for Baden-Württemberg

- **Stefanie Bürkle, Sigmaringen**
  District Administrator of the Sigmaringen district

- **Stefan Paul Hamm, Gerlingen**
  Union Secretary/Head of the Department for Utilities and Waste Management, ver.di Baden-Württemberg

- **Volker Hüsgen, Essen**
  Chairman of the works council of Stadtwerke Düsseldorf AG
  until 31 December 2019
  Independent works council representative since 1 January 2020
  Member of the Group works council for the EnBW Group and first Deputy Chairman of the Supervisory Board of Stadtwerke Düsseldorf AG

- **Michaela Kräutter, Stutensee**
  Union Secretary for Utilities and Waste Management and State Union Secretary for Employees, ver.di Central Baden/North Black Forest district

- **Marianne Kugler-Wendt, Heilbronn**
  Regional Director of ver.di for the districts Heilbronn-Neckar-Franconia (until 30 September 2019) and Rhine-Neckar (until 30 May 2019)

- **Thomas Landsbek, Wangen im Allgäu**
  Member of the Group works council for the EnBW Group as well as Chairman of the central works council for the "market sector" and Chairman of the Stuttgart works council for the "market sector" of EnBW Energie Baden-Württemberg AG, Karlsruhe

- **Dr. Hubert Lienhard, Heidenheim an der Brenz**
  Supervisory Board

- **Marika Lulay, Heppenheim**
  Chairwoman of the Managing Directors (CEO) and member of the Board of Directors at GFT Technologies SE, Stuttgart

- **Dr. Wolf-Rüdiger Michel, Rottweil**
  District Administrator of the Rottweil district

- **Gunda Röstel, Flöha**
  Commercial Director of Stadtentwässerung Dresden GmbH and Authorised Officer of Gelsenwasser AG

- **Jürgen Schäfer, Bissingen**
  Member of the Group works council for the EnBW Group and Deputy Chairman of the works council for TransnetBW GmbH, Stuttgart

- **Harald Sievers, Ravensburg**
  District Administrator of the Ravensburg district

- **Edith Sitzmann MdL, Freiburg**
  Minister for Finance of the Federal State of Baden-Württemberg and member of the State Parliament of Baden-Württemberg

- **Ulrike Weindel, Karlsruhe**
  Member of the Group works council for the EnBW Group as well as Chairwoman of the central works council for the "functional units sector" and Chairwoman of the Karlsruhe operations for the "functional units sector" of EnBW Energie Baden-Württemberg AG, Karlsruhe

- **Lothar Wölfle, Friedrichshafen**
  District Administrator of the Lake Constance district

- **Dr. Bernd-Michael Zinow, Karlsruhe**
  Head of the functional unit Legal Services, Auditing, Compliance and Regulation (General Counsel) at EnBW Energie Baden-Württemberg AG, Karlsruhe

Status
- Active member
- Inactive member

As of 4 March 2020

Further information is available at:
www.enbw.com/supervisory-board

Committees

Personnel committee

- Lutz Feldmann
  Chairman
- Achim Binder
- Stefan Paul Hamm
- Dietrich Herd
- Edith Sitzmann
- Lothar Wölfle

Audit committee

- Gunda Röstel
  Chairwoman
- Stefanie Bürkle
- Volker Hüsgen
- Marianne Kugler-Wendt
- Thomas Landsbek
- Dr. Hubert Lienhard
- Dr. Wolf-Rüdiger Michel
- Ulrike Weindel

Ad hoc committee (since 7 June 2010)

- Dr. Bernd-Michael Zinow
  Chairman
- Dietrich Herd
- Gunda Röstel
- Harald Sievers

Finance and investment committee

- Lutz Feldmann
  Chairman
- Achim Binder
- Dr. Dietrich Birk
- Stefan Paul Hamm
- Dietrich Herd
- Edith Sitzmann
- Lothar Wölfle
- Dr. Bernd-Michael Zinow

Nomination committee

- Lutz Feldmann
  Chairman
- Dr. Dietrich Birk
- Dr. Wolf-Rüdiger Michel
- Gunda Röstel
- Edith Sitzmann
- Lothar Wölfle

Mediation committee (committee pursuant to section 27 (3) German Co-determination Act (MitbestG))

- Lutz Feldmann
  Chairman
- Dietrich Herd
- Thomas Landsbek
- Edith Sitzmann

Digitalisation committee (since 1 January 2019)

- Dr. Hubert Lienhard
  Chairman
- Michaela Kräutter
- Marika Lulay
- Jürgen Schäfer
- Harald Sievers
- Ulrike Weindel

Status
- Active member
- Inactive member

As of 4 March 2020

Further information is available at:
www.enbw.com/supervisory-board

Offices held by members of the Board of Management

Dr. Frank Mastiaux
Chairman

Thomas Kusterer
- Netze BW GmbH
- VNG AG (Chairman)

Colette Rückert-Hennen
- EnBW Kernkraft GmbH (Chairwoman) (since 1 July 2019)

Dr. Hans-Josef Zimmer
- Stadtwerke Düsseldorf AG (Chairman) (since 1 January 2020)
- EnBW Kernkraft GmbH
- Netze BW GmbH (Chairman)
- terranets bw GmbH (Chairman)
- TransnetBW GmbH (Chairman)

- Vorarlberger Illwerke AG

Dr. Bernhard Beck
(until 30 June 2019)
- EnBW Kernkraft GmbH (Chairman) (until 30 June 2019)
- Energiedienst AG
- Stadtwerke Düsseldorf AG (Chairman) (until 31 December 2019)

- BKK VerbundPlus, Körperschaft des öffentlichen Rechts (alternating Chairman)
- Energiedienst Holding AG
- Pražská energetika a.s.

Status	Disclosures of office holders pursuant to section 285 No. 10 German Commercial Code (HGB)
Active member	– Membership in other statutory supervisory boards
Inactive member	– Membership in comparable domestic and foreign control bodies of business enterprises

Further information is available at: www.enbw.com/board-of-management

As of 4 March 2020

Other offices held by members of the Supervisory Board

Lutz Feldmann
Chairman
- Villa Claudius gGmbH (Chairman)
- Thyssen'sche Handelsgesellschaft mbH

Dietrich Herd
Deputy Chairman
- EnBW Kernkraft GmbH

Achim Binder
- Netze BW GmbH

Dr. Dietrich Birk
- SRH Holding (SdbR)

Stefanie Bürkle
- SWEG Südwestdeutsche Landesverkehrs-AG

- Hohenzollerische Landesbank Kreissparkasse Sigmaringen, Anstalt
- Flugplatz Mengen Hohentengen GmbH (Chairwoman)
- SRH Kliniken Landkreis Sigmaringen GmbH (Chairwoman)
- Sparkassenverband Baden-Württemberg, Anstalt des öffentlichen Rechts
- Verkehrsverbund Neckar-Alb-Donau GmbH (naldo) (Chairwoman)
- Wirtschaftsförderungs- und Standortmarketinggesellschaft Landkreis Sigmaringen mbH (Chairwoman)
- Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairwoman)
- Zweckverband Thermische Abfallverwertung Donautal (TAD) (Deputy Chairwoman)

Stefan Paul Hamm
- Netze BW GmbH

Volker Hüsgen
- AWISTA GmbH
- Netzgesellschaft Düsseldorf mbH
- Stadtwerke Düsseldorf AG

- RheinWerke GmbH

Michaela Kräutter
- Netze BW GmbH

Marianne Kugler-Wendt
- Bausparkasse Schwäbisch Hall AG (until 31 May 2019)
- EnBW Kernkraft GmbH
- SLK-Kliniken Heilbronn GmbH (until 30 September 2019)

- Heilbronner Versorgungs GmbH
- Stadtwerke Heilbronn GmbH
- Heilbronn Marketing GmbH (since 1 October 2019)

Thomas Landsbek
- BürgerEnergiegenossenschaft Region Wangen im Allgäu eG

- Gemeindewerke Bodanrück GmbH & Co. KG

Dr. Hubert Lienhard
- Heraeus Holding GmbH
- SMS Group GmbH
- Voith GmbH & Co. KGaA
- Voith Management GmbH

- Broetje-Automation GmbH (Chairman) (until 31 November 2019)
- Hellkamp & Thumann KG

Marika Lulay
- Wüstenrot & Württembergische AG
- GFT Technologies SE

Dr. Wolf-Rüdiger Michel
- Kreisbaugenossenschaft Rottweil e. G. (Chairman)

- ITEOS, Anstalt des öffentlichen Rechts
- Kreissparkasse Rottweil, Anstalt des öffentlichen Rechts (Chairman)
- Schwarzwald Tourismus GmbH
- SMF Schwarzwald Musikfestival GmbH
- Sparkassen-Beteiligungen Baden-Württemberg GmbH
- Sparkassenverband Baden-Württemberg, Körperschaft des öffentlichen Rechts
- Wirtschaftsförderungsgesellschaft Schwarzwald-Baar-Heuberg mbH
- Zweckverband Bauernmuseum Horb/Sulz
- Zweckverband Oberschwäbische Elektrizitätswerke (Deputy Chairman)
- Zweckverband Ringzug Schwarzwald-Baar-Heuberg
- Zweckverband RBB Restmüllheizkraftwerk Böblingen (Deputy Chairman)
- ZTN-Süd Warthausen

Status	Disclosures of office holders pursuant to section 285 No. 10 German Commercial Code (HGB)
Active member	– Membership in other statutory supervisory boards
Inactive member	– Membership in comparable domestic and foreign control bodies of business enterprises

Further information is available at: www.enbw.com/supervisory-board

As of 4 March 2020

Gunda Röstel
- Universitätsklinikum Carl Gustav Carus Dresden an der Technischen Universität Dresden, Anstalt des öffentlichen Rechts (Deputy Chairwoman)
- VNG AG
- Netze BW GmbH

- Hochschulrat der Technischen Universität Dresden, Körperschaft des öffentlichen Rechts (Chairwoman)
- Stadtwerke Burg GmbH

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- Kreditanstalt für Wiederaufbau, Anstalt des öffentlichen Rechts

- Baden-Württemberg Stiftung gGmbH

Ulrike Weindel

Lothar Wölfle
- Abfallwirtschaftsgesellschaft der Landkreise Bodenseekreis und Konstanz (Chairman)
- Bodensee-Oberschwaben Verkehrsverbund GmbH
- Bodensee-Oberschwaben-Bahn Verkehrsgesellschaft mbH (Chairman since 1 January 2020)
- Sparkasse Bodensee (Deputy Chairman since 1 January 2020)
- Zweckverband Oberschwäbische Elektrizitätswerke (Chairman)
- Zweckverband Breitband Bodensee (Deputy Chairman) (since 24 September 2019)
- Wirtschaftsförderungsgesellschaft Bodenseekreis GmbH (Chairman)
- Regionales Innovations- und Technologietransfer Zentrum GmbH (RITZ) (Deputy Chairman)

Dr. Bernd-Michael Zinow
- TransnetBW GmbH
- VNG AG

Status
- **Active member**
- **Inactive member**

Disclosures of office holders pursuant to section 285 No. 10 German Commercial Code (HGB)
- Membership in other statutory supervisory boards
- Membership in comparable domestic and foreign control bodies of business enterprises

As of 4 March 2020

Further information is available at: www.enbw.com/supervisory-board

Service

Rear cover pages:

Financial calendar 2020

On track for growth with new wind farms in the North Sea

Financial terms

Adjusted earnings figures
Adjusted earnings figures are operational earnings figures that are adjusted for non-operating effects. They include, amongst others, adjusted EBIT and adjusted Group net profit/loss.

Adjusted EBITDA
The operating profitability of companies is often measured based on adjusted EBITDA (earnings before interest, taxes, depreciation and amortisation). It describes earnings before the investment and financial results, income taxes and amortisation, adjusted for non-operating effects. The key performance indicator adjusted EBITDA is the central earnings indicator for EnBW.

Capital employed
Capital employed comprises all assets from the operating business. At EnBW, it primarily comprises property, plant and equipment in the form of power plants or grids. Non-interest-bearing liabilities – such as trade payables – are deducted.

Debt repayment potential
This future key performance indicator describes the > retained cash flow in relation to the > net debt and is the most significant performance indicator of the Group's ability to repay its debts internally. It will replace the > internal financing capability from 2021.

EBIT
EBIT stands for earnings before interest and taxes.

EBITDA
EBITDA stands for earnings before interest, taxes, depreciation and amortisation.

EBT
EBT stands for earnings before taxes.

Free cash flow
The cash flow freely available to the company for the distribution of dividends and for the repayment of debt.

Funds from operations (FFO)
FFO is the cash-relevant earnings from operating activities that is available to the company for investments, the distribution of dividends and the repayment of debt.

Internal financing capability
The key performance indicator internal financing capability describes the > adjusted retained cash flow in relation to the > net (cash) investment and is the most significant performance indicator in the period from 2017 to 2020 of the Group's ability to finance its activities internally.

Net financial debt
Net financial debt comprises the financial liabilities (including finance leases) taken on by the company less cash and cash equivalents and financial assets that are available to the company for its operating business. Financial liabilities are adjusted for valuation effects from interest-induced hedging transactions and for the portion of equity for the hybrid bonds.

Net (cash) investment and adjusted net (cash) investment
Net (cash) investment describes the overall cash-relevant investment less the overall cash-relevant divestitures in the financial year. In the 2019 financial year, the adjusted net (cash) investment was adjusted to take account of accelerated growth investment, which has already been paid for the EnBW 2025 growth strategy.

Net debt
Net debt comprises > net financial debt and the > net debt relating to pension and nuclear obligations.

Net debt relating to pension and nuclear obligations
Net debt relating to pension and nuclear obligations comprises the provisions for pensions and similar obligations and provisions relating to nuclear power. These provisions are netted against receivables relating to the dismantling of nuclear power plants and the > dedicated financial assets.

Non-operating figures
The non-operating figures include effects that cannot be predicted or cannot be directly influenced by EnBW and as such are not relevant to the ongoing management of the company. They include, amongst others, non-operating EBIT and non-operating Group net profit/loss.

Retained cash flow and adjusted retained cash flow
The retained cash flow is decisive for the > internal financing capability of EnBW. After covering ongoing costs and dividend payments, it is available to the company for investment without the need to raise additional debt. The adjusted retained cash flow is the retained cash flow adjusted to take into account the extraordinary effect of the reimbursement of the > nuclear fuel rod tax in 2017. In the 2018 financial year, the reimbursed funds were used for the repayment of debt and for strategic investments. We plan to distribute the remaining amount on a straight-line basis in the period 2019 to 2020, also for the purpose of strategic investment. Accordingly, this will lead to an increase in the adjusted retained cash flow over the period 2018 to 2020.

ROCE
ROCE is the return on capital employed in a company. The key performance indicator ROCE describes the relationship between adjusted EBIT including the adjusted investment result and the average capital employed and is thus the central value-oriented performance indicator of EnBW for assessing the return on capital employed in the relevant financial year.

WACC
WACC stands for the weighted average cost of capital and is used in combination with value-based performance indicators. The cost of capital is determined based on the weighted average cost of equity and debt together.

Glossary

A

Asset liability management (ALM) model
A model for asset liability and cash flow management. A cash flow-based model is used to determine the effects of the pension and nuclear provisions on the balance sheet, income statement and cash flow statement over the next 30 years. This ensures that the Group can cover its long-term pension and nuclear provisions within an economically viable time period using corresponding financial investments (so-called > dedicated financial assets).

Asset management
A financial asset management system facilitates the active management of investments that are used to cover pension and nuclear provisions. The central focus of this activity is to generate appropriate returns while taking into account the risks incurred.

B

Base
Base load product. The constant base level of supply/demand over a period of time.

Broadband
EnBW supports local authorities and municipal associations with tasks ranging from broadband planning and the installation of the infrastructure through to operation, as well as with the associated end-customer business (Internet, telephone and television).

Bundle
Product bundling (bundle offer) describes offering multiple products or services together in one package. Customers receive an appropriate add-on in addition to their purchase.

C

Cash pooling
Daily pooling of the cash or cash equivalents of one or multiple companies within a Group with the target of concentrating and transparently depicting them at the level of the parent company in order to optimise the interest result.

Certified Emission Reduction (CER)
Certified emission reductions from Clean Development Mechanism (CDM) projects. Pursuant to the Kyoto protocol, investors in industrialised countries earn these in developing countries with CDM emission reduction projects. 1 CER corresponds to 1 t CO_2. CERs can be used by companies to meet the obligation to return allowances under the European emissions trading system.

Clean Dark Spread (CDS)
The difference between the electricity price and the generation costs for a typical coal power station, which is calculated using the coal price, CO_2 allowance price and the degree of efficiency of the power station.

CO_2 allowances
CO_2 allowances have been traded on the Leipzig electricity exchange since 2005. If a company purchases a CO_2 allowance, it is entitled to emit 1 t CO_2.

CO_2 intensity
In the energy sector, CO_2 intensity refers to CO_2 emissions connected with electricity generation. It is measured in terms of g/kWh or t/MWh. CO_2 intensity as referred to here in the energy sector should not be confused with the meaning used in the wider economy.

Coal Commission
The Commission on Growth, Structural Change and Employment (commonly known as the Coal Commission) was appointed by the German government to present recommendations on, amongst other things, the themes of climate protection, safeguarding jobs and economic aspects related to the phase-out of coal generated power.

Combined Heat and Power Act (KWKG)
The Combined Heat and Power Act (KWKG) governs the remuneration and feed-in of electricity generated in combined heat and power plants (large CHP power plants and small decentralised CHP blocks).

Commercial paper (CP) programme
The CP programme is a flexible financing instrument and serves to issue unsecured bonds on the money market for the purpose of short-term financing.

Coverage ratio
Coverage of the pension and nuclear provisions of the Group by financial assets in the > dedicated financial assets.

CSR performance
CSR performance provides an indication of a company's entire sustainability performance. It examines measures to protect the environment and human rights, promote good working conditions and fight corruption within the traditional dimension of corporate social responsibility (CSR) and also focuses on which processes a company has established to guarantee them.

D

Debt Issuance Programme (DIP)
The DIP, also known as EMTN (Euro Medium Term Notes), is a standardised documentation platform for raising debt through the issuing of medium and long-term bonds on the capital market.

Dedicated financial assets
Dedicated financial assets are cash and cash equivalents and financial assets that are held to cover the pension and nuclear obligations.

Derivatives
Financial instruments whose price or market rate is derived from its underlying asset.

District development
District development deals with smart and sustainable urban planning, as well as connecting up, constructing and operating modern residential districts. It comprises urban infrastructure themes such as energy, grids, e-mobility, digital networking, safety and smart services.

E

EEG cost allocations
Cost allocations under the EEG (Renewable Energies Act) are charged by the transmission system operators (TSO). On the one hand, the cost allocations cover the difference between the income generated by the transmission system operators from selling the electricity from RE plants and the expenses incurred by the transmission system operators for the fixed feed-in remuneration and market premium payments to direct marketers of RE plants, while on the other hand, they also cover the costs of implementing the EEG. More than half of the electricity price for household customers today consists of taxes, duties and cost allocations. The EEG cost allocation accounts for the largest share.

Electromobility charging infrastructure
There are currently four different types of electrical connectors for charging electric vehicles. An AC charging station provides alternating current with up to 3.6 kW of electricity via a Schuko connector and up to 22 kW of electricity via a type-2 connector at each charging point. An AC/DC charging station (quick-charging station) is equipped with a CCS and CHAdeMO connector providing up to 50 kW (DC = direct current) of electricity and with a type-2 connector providing up to 43 kW (AC = alternating current) of electricity. A charging station can have multiple charging points. The actual charging output is dependent on how quickly a vehicle can charge. Starting in 2019, existing locations are upgraded with quick-charging stations with a charging output of up to 150 kW.

Energy saving contracting
The cross-discipline optimisation of building technology together with building operation based on cooperation in partnership. Investments in renovations or efficiency enhancement measures are financed through energy cost-savings.

Energy supply contracting
The outsourcing, for a specific period and for a specific area, of tasks relating to energy optimisation or utility energy supplies to a third party.

EPEX
The European Power Exchange (EPEX SPOT SE) is a stock exchange for the short-term wholesale trading of electricity in Germany, France, Austria, Switzerland and Luxembourg.

EU allowance (EUA)
EU emission allowance. An EUA entitles a company to emit 1 t CO_2. Each EU state allocates its supply of EUAs (1 EUA = 1 t CO_2) to its national companies either free of charge or via auctions.

EU Green Deal
The EU Green Deal is a package of measures from the European Union with the primary aim of making the EU climate neutral by 2050 and which contains staggered measures to achieve this goal.

F

Forward market
Market on which the supply and procurement of electricity, fuel and CO_2 allowances are traded for a future period. Usual periods include weeks, months, quarters and years. Settlement can be either physical or financial. The forward market has the primary function of acting as a price hedge.

G

Green bonds
Green bonds are issued exclusively to finance climate-friendly projects. The proceeds are invested in sustainable environmental and climate protection projects.

Greenhouse gas emissions
The increase in the concentration of various greenhouse gases, especially carbon dioxide (CO_2), increases the greenhouse effect and leads to global warming, which itself has many consequences. Alongside carbon dioxide, other greenhouse gases include methane, nitrous oxide, fluorinated hydrocarbons, sulphur hexafluoride and nitrogen trifluoride.

Greenhouse Gas (GHG) Protocol
The Greenhouse Gas Protocol (GHG Protocol) is a globally recognised standard for calculating CO_2 and greenhouse gas emissions. To identify the main sources of emission in a company, it is very important to correctly define and categorise relevant direct and indirect sources of emissions. The GHG Protocol defines the fundamental principles with respect to relevance, completeness, consistency, transparency and precision. It is based on the principles of financial accounting and divides the greenhouse gas emissions into three emission categories: Scope 1, Scope 2 and Scope 3.

H

Hedging
Hedging is a structured approach for securing against financial risks through financial transactions. Hedging involves engaging in countertrade transactions to offset a transaction or an existing position. This is usually carried out in the form of futures contracts.

HVDC
High-voltage DC transmission lines (HVDC) are used to transport electrical energy across large distances. The transmission lines use direct current for transportation as the transmission losses are lower.

I

Independent Transmission Operator (ITO)
The "Independent Transmission Operators" must fulfil the European unbundling regulations for greater liberalisation of the electricity and natural gas markets (3rd EU internal energy market package), which were implemented in the German Energy Industry Act (EnWG) in 2011. The aim of the unbundling regulations defined in the EnWG is to increase competition on the European energy market. An important prerequisite here is that the transmission grids are made available to all market participants as a neutral platform in a non-discriminatory way.

Intraday trading
Intraday trading of electricity is carried out on both the > EPEX SPOT in Paris and the OTC (Over-the-Counter) market, i.e. via contracts negotiated off-exchange between electricity purchasers and sellers. It describes the continuous purchase and sale of electricity that is delivered on the same day. Therefore, it is also described as short-term wholesale electricity trading.

Investment-grade rating
An investment-grade rating exists if a credit rating of at least Baa3 (Moody's) or BBB- (Standard & Poor's) has been issued.

N

Network Development Plan Electricity (NDP Electricity)
This plan describes the measures that need to be deployed over the next 10 and 20 years to expand and restructure the German land-based high-voltage grid to ensure the secure operation of the network. These measures make a significant contribution to the integration of rapidly growing renewable energies and thus also to the Energiewende. The NDP Electricity is prepared jointly by the four German transmission system operators every two years (since 2016), before being submitted to the German Federal Network Agency (BNetzA) as the responsible regulator.

Network Development Plan Gas (NDP Gas)
In the NDP Gas, German gas transmission system operators calculate the transportation capacities that they will require in the future. The plan is prepared every two years in close cooperation with the German Federal Network Agency (BNetzA) and in consultation with relevant market participants.

Nuclear fuel rod tax
This tax was imposed from 2011 to 2016 at a rate of €145/g of nuclear fuel employed. However, it was declared unconstitutional on 7 June 2017 and also repaid to all energy supply companies in 2017.

P

Pari passu clause
A pari passu clause (Latin "pari passu" = on equal footing) is an obligation in financial agreements (for example, in bond agreements or loan agreements). The debtor/issuer obligates themselves during the term of the uncollateralised financial liability (for example, bond or loan) to the principle of equality, meaning future uncollateralised financial liabilities will not be given precedence over the existing financial liability.

R

Repowering
Old power plants for generating energy are replaced by newer and more efficient ones. The term is mainly used in connection with wind turbines.

S

Sectoral productivity factor (Xgen)
The sectoral productivity factor (Xgen) reflects the difference between cost developments in the efficient operation of electricity and gas grids and the development of prices within the whole economy. It is used as an adjustment factor for the consumer price index and is taken into account in the revenue cap for the grid operators.

Sector coupling
Sector coupling is the networking of electricity, heating, mobility and industrial processes for the purpose of lowering carbon dioxide emissions. As sector coupling offers synergy effects in the integration of high proportions of renewable energies, it is viewed as a key concept for the Energiewende and the development of energy systems using 100% renewable energies. There is a general consensus that sector coupling is necessary for the implementation of the Energiewende and the achievement of climate protection targets.

Smart grid
The smart electricity grid, a communication and control network that monitors and optimises the operation of its interconnected elements – from electricity generators, storage systems, consumers of electricity and network operating equipment in energy transmission and distribution grids. The aim is to optimise the supply of energy by operating the system efficiently, reliably and cost-effectively.

Special technical equipment for grids
Special technical equipment for grids are generation plants that will secure the electricity supply in the event of grid-related supply bottlenecks after the last nuclear power plants have been shut down.

Spot market
Market on which electricity supply and procurement quantities are offered and requested for the following day.

System services
The complete set of services required to ensure the quality of electricity supplies: provision of operating reserves, maintaining frequency stability, maintaining voltage levels, re-establishing supply, management services.

T

TCFD (Task Force on Climate-related Financial Disclosures)
The Task Force on Climate-related Financial Disclosures (TCFD) has developed recommendations for the climate-related opportunity and risk reporting by companies. Companies are encouraged to disclose climate-related information – in the four key areas of Governance, Strategy, Risk Management and Metrics and Targets – where such information is considered material for the company. EnBW is represented on the international task force appointed by the G20 through its Chief Financial Officer Thomas Kusterer (www.fsb-tcfd.org).

TEG (Technical Expert Group on Sustainable Finance)
The European Commission set up an expert group in July 2018 with the task of drawing up key aspects for the development of a sustainable financial system for the European internal market. Alongside the development of a taxonomy for sustainable economic activity, the aim is to develop minimum standards for green bonds and sustainability benchmarks, as well as to update the non-binding guidelines on non-financial disclosure while paying particular consideration to climate-related information. The Chief Financial Officer of EnBW, Thomas Kusterer, was appointed to the expert group.

V

Virtual power plant
A virtual power plant is a business segment where products are marketed through a single platform that increases the value of decentralised energy plants – renewable energies, storage systems, loads – by bundling, marketing and optimising them together.

Multi-year overview

Financial and strategic performance indicators

EnBW Group		2019	2018	2017	2016	2015
Earnings						
External revenue[2]	in € million	18,765	20,815	21,974	19,368	21,167
Adjusted EBITDA	in € million	2,433	2,158	2,113	1,939	2,110
EBITDA	in € million	2,245	2,090	3,752	731	1,918
Adjusted EBIT	in € million	945	958	999	1,025	1,182
EBIT	in € million	597	876	2,504	-1,663	277
Group net profit/loss[1]	in € million	734	334	2,054	-1,797	158
Earnings per share from Group net profit/loss[1]	in €	2.71	1.23	7.58	-6.64	0.58
Balance sheet						
Non-current assets	in € million	29,321	24,643	24,878	23,382	24,388
Total assets	in € million	43,288	39,609	38,785	38,535	38,158
Equity	in € million	7,445	6,273	5,863	3,216	5,123
Equity ratio	in %	17.2	15.8	15.1	8.3	13.4
Net financial debt	in € million	6,022	3,738	2,918	3,654	3,329
Coverage ratio ALM	in %	48.1	51.8	53.3	60.8	74.2
Cash flow						
Retained cash flow	in € million	1,241	999	3,050	950	1,718
Internal financing capability[2]	in %	82.6	92.2	111.9	72.1	347.8
Total investment[2]	in € million	3,315	1,786	1,770	2,585	1,462
Profitability						
Return on capital employed (ROCE)	in %	5.2	6.5	7.3	7.8	9.5
Weighted average cost of capital before tax	in %	5.2	6.3	6.3	6.9	6.9
Average capital employed	in € million	19,315	16,053	15,120	13,761	13,627
Value added	in € million	0	32	151	124	354
Sales						
Electricity	in billions of kWh	153	137	122	115	115
Gas[2]	in billions of kWh	297	329	250	139	135
Sales						
Electricity sales[2]	in billions of kWh	37	38	40	44	48
Gas sales[2]	in billions of kWh	74	68	57	54	82

Financial and strategic performance indicators

EnBW Group		2019	2018	2017	2016	2015
External revenue[2]	in € million	7,679	7,348	7,354	7,771	9,061
Adjusted EBITDA[1]	in € million	294	268	330	250	255
Grids						
External revenue	in € million	3,460	3,215	7,472	6,644	6,351
Adjusted EBITDA	in € million	1,311	1,177	1,046	1,004	747
Renewable Energies						
Electricity sales	in billions of kWh	3	2	2	3	3
External revenue	in € million	653	478	508	511	447
Adjusted EBITDA	in € million	483	298	332	295	287
Generation and Trading						
Electricity sales[2]	in billions of kWh	112	97	80	68	65
Gas sales[2]	in billions of kWh	223	260	193	85	53
External revenue[2]	in € million	6,970	9,768	6,631	4,434	5,300
Adjusted EBITDA[2]	in € million	384	431	377	337	777

1 In relation to the profit/loss attributable to the shareholders of EnBW AG
2 The figures for the 2018 financial year have been restated

Non-financial performance indicators

	2019	2018	2017	2016	2015
Customers and society goal dimension					
Reputation index	52.8	51.3	52.1	50.0	48.5
EnBW/Yello Customer Satisfaction Index[1]	136/157	120/152	143/161	132/150	136/152
SAIDI (electricity) in min./year	15	17	19	16	15
Employees goal dimension					
Employee Commitment Index (ECI)[2]	66	62	60	59	60
LTIF for companies controlled by the Group[3]/LTIF overall[4]	2.1/3.8	2.3/3.6	3.0/–[5]	3.9/–[5]	3.8/–[5]
Environment goal dimension					
Installed output of renewable energies (RE) in GW and the share of the generation capacity accounted for by RE in %	4.4/31.8	3.7/27.9	3.4/25.8	3.1/23.1	3.1/23.6
CO_2 intensity in g/kWh	419	553	556	577	606

1 EnBW has been working together with a new market research company since 2017. Despite using the same survey methodology and random sampling, current and earlier values are only comparable to a limited extent.
2 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered (except IFOs)).
3 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for companies in the area of waste management as well as external agency workers and contractors).
4 Variations in the group of consolidated companies (all companies with more than 100 employees are generally considered except for external agency workers and contractors).
5 This performance indicator has only been reported since 2019. No figures for the comparative periods 2015 to 2017 are available.

Important notes

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Communication Media & Events, Karlsruhe

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Catrin Moritz, Essen; Uli Deck, Karlsruhe; Paul Gärtner, Karlsruhe

Photo of the Supervisory Board
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Publication in the German Federal Gazette
The complete consolidated financial statements prepared by EnBW Energie Baden-Württemberg AG and audited by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft and the management report, which is combined with the Group management report, will be published in the German Federal Gazette ("Bundesanzeiger") together with the unqualified audit opinion. The necessary documents will be submitted to the German Federal Gazette ("Bundesanzeiger") by 30 April 2020 at the latest.

No offer or investment recommendation
This report has been prepared for information purposes only. It does not constitute an offer, an invitation or a recommendation to purchase or sell securities issued by EnBW Energie Baden-Württemberg AG (EnBW), a company of the EnBW Group or any other company. This report also does not constitute a request, invitation or recommendation to vote or give consent. All descriptions, examples and calculations are included in this report for illustrative purposes only.

Forward-looking statements
This report contains forward-looking statements which are based on current assumptions, plans, estimates and forecasts made by the management of EnBW. Forward-looking statements of this kind are therefore only valid at the time they were first published. Forward-looking statements are indicated by the context, but may also be identified by the use of the words "can", "will", "should", "plans", "intends", "expects", "thinks", "estimates", "forecasts", "potential", "continued" and similar expressions.

By nature, forward-looking statements are subject to risks and uncertainties that cannot be controlled or accurately predicted by EnBW. Actual events, future results, the financial position, development or performance of EnBW and the companies of the EnBW Group may therefore diverge considerably from the forward-looking statements made in this report. Therefore, it cannot be guaranteed nor can any liability otherwise be assumed that these forward-looking statements will prove complete, correct or precise, or that expected and forecast results will actually occur in the future.

No obligation to update the information
EnBW assumes no obligation of any kind to update the information contained in this report or to adjust or otherwise update forward-looking statements to future events or developments. This Annual Report can also be downloaded from the Internet in German or English. In cases of doubt, the German version shall be authoritative.

Financial calendar 2020

26 March 2020
Publication of the Integrated Annual Report 2019

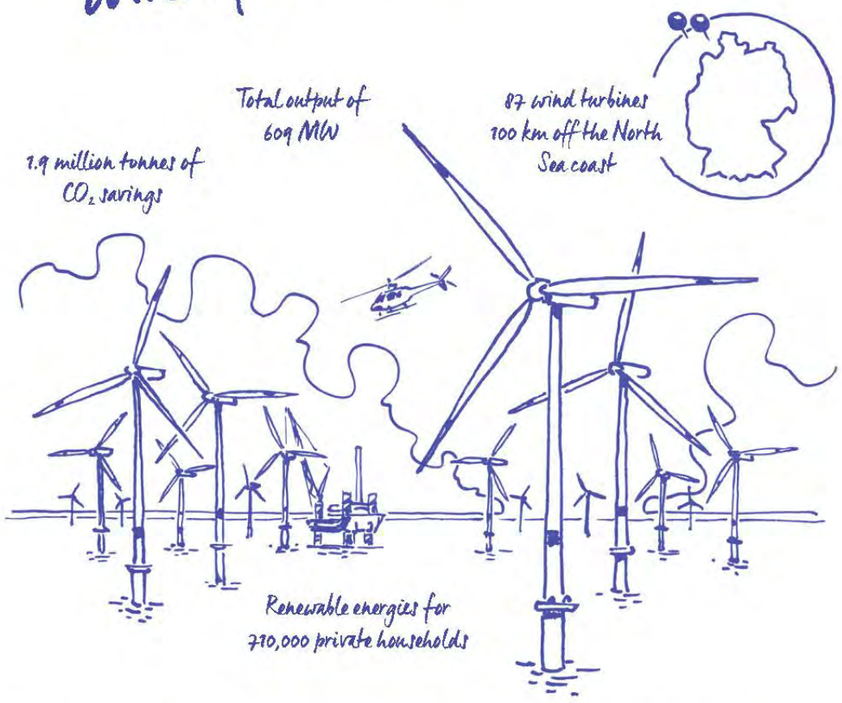
Annual General Meeting 2020
Due to the current COVID-19 crisis, the Annual General Meeting has been postponed. A new date has not yet been set.

15 May 2020
Publication of the Quarterly Statement January to March 2020

30 July 2020
Publication of the Six-Monthly Financial Report January to June 2020

13 November 2020
Publication of the Quarterly Statement January to September 2020

On track for growth with new wind farms in the North Sea



Completed in 2019, EnBW Hohe See and EnBW Albatros have a total capacity of 609 MW, which makes these two wind farms the largest offshore project to be built in Germany to date.

We are continuing to push forward the expansion of renewable energies and are planning to construct the EnBW He Dreiht wind farm in the North Sea with 900 MW of output – for the first time without state funding.

Contents

Playing an active role in shaping the Energiewende

The image section can be found at the beginning of the report.

Navigation

The integrated management of EnBW comprises financial and non-financial goals in the dimensions:

Finance · Strategy · Customers and society · Employees · Environment

TOP Our key performance indicators are labelled with this symbol.

The cross-references take you to further information within this report or to the definition of terms in the glossary.

We have also published an online version of the Integrated Annual Report 2019 at: www.enbw.com/report2019.

EnBW Energie
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10.5. Annexe 5 : Bilan 2017 - 2018 de la société VALECO

Formulaire obligatoire (article 53 A du code général des impôts)

① BILAN - ACTIF — DGFiP N° 2050 2019

Désignation de l'entreprise : SAS VALECO — Durée de l'exercice exprimée en nombre de mois * : 12
Adresse de l'entreprise : 188 RUE MAURICE BEJART 34080 MONTPELLIER — Durée de l'exercice précédent * : 12
Numéro SIRET * : 4 2 1 3 7 7 9 4 6 0 0 0 3 1 — Néant ☐ *

			Brut 1	Amortissements, provisions 2		Exercice N, clôture 31122018 Net 3	N-1 31122017 Net 4
	Capital souscrit non appelé (I)	AA					
ACTIF IMMOBILISÉ * — IMMOBILISATIONS INCORPORELLES	Frais d'établissement *	AB		AC			
	Frais de développement *	CX		CQ			
	Concessions, brevets et droits similaires	AF	94 725	AG	64 949	29 776	8 652
	Fonds commercial (1)	AH		AI			
	Autres immobilisations incorporelles	AJ	73 065	AK		73 065	36 726
	Avances et acomptes sur immobilisations incorporelles	AL		AM			
IMMOBILISATIONS CORPORELLES	Terrains	AN		AO			
	Constructions	AP	1 707 509	AQ	436 588	1 270 921	1 344 236
	Installations techniques, matériel et outillage industriels	AR	265 515	AS	43 491	222 024	235 264
	Autres immobilisations corporelles	AT	806 656	AU	403 603	403 054	399 460
	Immobilisations en cours	AV	42 235	AW		42 235	
	Avances et acomptes	AX		AY			
IMMOBILISATIONS FINANCIÈRES (2)	Participations évaluées selon la méthode de mise en équivalence	CS		CT			
	Autres participations	CU	8 723 364	CV	25 370	8 697 995	8 394 266
	Créances rattachées à des participations	BB		BC			
	Autres titres immobilisés	BD	22 888 783	BE		22 888 783	19 216 709
	Prêts	BF		BG			
	Autres immobilisations financières *	BH	1 746 397	BI		1 746 397	56 707
	TOTAL (II)	BJ	**36 348 249**	BK	**974 001**	**35 374 248**	**29 692 019**
ACTIF CIRCULANT — STOCKS *	Matières premières, approvisionnements	BL		BM			
	En cours de production de biens	BN	555 130	BO	489 217	65 913	7 478
	En cours de production de services	BP		BQ			
	Produits intermédiaires et finis	BR		BS			
	Marchandises	BT		BU			
	Avances et acomptes versés sur commandes	BV		BW			
CRÉANCES	Clients et comptes rattachés (3) *	BX	3 617 984	BY		3 617 984	2 442 573
	Autres créances (3)	BZ	36 970 921	CA	745 074	36 225 848	29 311 220
	Capital souscrit et appelé, non versé	CB		CC			
DIVERS	Valeurs mobilières de placement (dont actions propres)	CD		CE			
	Disponibilités	CF	6 200 444	CG		6 200 444	10 762 735
Comptes de régularisation	Charges constatées d'avance (3) *	CH	144 738	CI		144 738	41 426
	TOTAL (III)	CJ	**47 489 217**	CK	**1 234 290**	**46 254 927**	**42 565 432**
	Frais d'émission d'emprunt à étaler (IV)	CW					
	Primes de remboursement des obligations (V)	CM					
	Ecarts de conversion actif * (VI)	CN	50 102			50 102	3 107
	TOTAL GENERAL (I à VI)	CO	**83 887 568**	1A	**2 208 291**	**81 679 277**	**72 260 558**

Renvois : (1) Dont droit au bail — (2) Part à moins d'un an des immobilisations financières nettes CP — (3) Part à plus d'un an CR
Clause de réserve de propriété * : Immobilisations — Stocks : — Créances :

* Des explications concernant cette rubrique sont données dans la notice n° 2032

Formulaire obligatoire (article 53 A du Code général des impôts)

② BILAN - PASSIF avant répartition — DGFiP N° 2051 2019

Désignation de l'entreprise : SAS VALECO — Néant ☐ *

			Exercice N	Exercice N-1
CAPITAUX PROPRES	Capital social ou individuel (1) * (Dont versé : 11 192 751)	DA	11 192 751	11 192 751
	Primes d'émission, de fusion, d'apport, ...	DB	17 821 196	17 821 196
	Ecarts de réévaluation (2) * (dont écart d'équivalence EK)	DC		
	Réserve légale (3)	DD	1 843 260	1 037 326
	Réserves statutaires ou contractuelles	DE		
	Réserves réglementées (3)* (Dont réserve spéciale des provisions pour fluctuation des cours B1)	DF		
	Autres réserves (Dont réserve relative à l'achat d'oeuvres originales d'artistes vivants* EJ)	DG		
	Report à nouveau	DH	27 647 021	15 020 548
	RESULTAT DE L'EXERCICE (bénéfice ou perte)	DI	**9 969 084**	**16 118 667**
	Subventions d'investissement	DJ	29 750	31 500
	Provisions réglementées *	DK		
	TOTAL (I)	DL	**68 503 062**	**61 221 988**
Autres fonds propres	Produit des émissions de titres participatifs	DM		
	Avances conditionnées	DN		
	TOTAL (II)	DO		
Provisions pour risques et charges	Provisions pour risques	DP	50 102	3 107
	Provisions pour charges	DQ		
	TOTAL (III)	DR	**50 102**	**3 107**
DETTES (4)	Emprunts obligataires convertibles	DS		
	Autres emprunts obligataires	DT		
	Emprunts et dettes auprès des établissements de crédit (5)	DU	3 791 805	1 474 745
	Emprunts et dettes financières divers (Dont emprunts participatifs EI)	DV	5 484 069	6 239 592
	Avances et acomptes reçus sur commandes en cours	DW		
	Dettes fournisseurs et comptes rattachés	DX	1 573 970	1 723 193
	Dettes fiscales et sociales	DY	1 720 130	1 560 272
	Dettes sur immobilisations et comptes rattachés	DZ	411	
	Autres dettes	EA	28 928	7 187
Compte régul.	Produits constatés d'avance (4)	EB	526 799	
	TOTAL (IV)	EC	**13 126 113**	**11 004 988**
	Ecarts de conversion passif * (V)	ED		30 475
	TOTAL GENERAL (I à V)	EE	**81 679 277**	**72 260 558**
RENVOIS	(1) Ecart de réévaluation incorporé au capital	1B		
	(2) Dont : Réserve spéciale de réévaluation (1959)	1C		
	(2) Dont : Ecart de réévaluation libre	1D		
	(2) Dont : Réserve de réévaluation (1976)	1E		
	(3) Dont réserve spéciale des plus-values à long terme *	EF		
	(4) Dettes et produits constatés d'avance à moins d'un an	EG	9 576 293	9 731 986
	(5) Dont concours bancaires courants, et soldes créditeurs de banques et CCP	EH	4 184	

* Des explications concernant cette rubrique sont données dans la notice n° 2032

Formulaire obligatoire (article 53 A du Code général des impôts)

③ COMPTE DE RESULTAT DE L'EXERCICE (En liste)

DGFiP N° 2052 2019

Désignation de l'entreprise : **SAS VALECO** — Néant ☐*

			Exercice N					Exercice (N-1)
			France		Exportations et livraisons intracommunautaires		Total	
PRODUITS D'EXPLOITATION	Ventes de marchandises *	FA		FB		FC		
	Production vendue biens*	FD	31 418	FE		FP	31 418	37 393
	Production vendue services *	FG	9 804 164	FH		FI	9 804 164	14 251 785
	Chiffres d'affaires nets*	FJ	**9 835 582**	FK		FL	**9 835 582**	**14 289 178**
	Production stockée *					FM	109 259	445 871
	Production immobilisée *					FN		
	Subventions d'exploitation					FO	2 077	5 628
	Reprises sur amortissements et provisions, transfert de charges * (9)					FP	4 537	6 297
	Autres produits (1) (11)					FQ	1 187	103
	Total des produits d'exploitation (2) (I)					FR	**9 952 641**	**14 747 077**
CHARGES D'EXPLOITATION	Achats de marchandises (y compris droits de douane) *					FS		
	Variation de stock (marchandises)*					FT		
	Achats de matières premières et autres approvisionnements (y compris droits de douane) *					FU		
	Variation de stock (matières premières et approvisionnements)*					FV		
	Autres achats et charges externes (3) (6 bis) *					FW	4 014 555	3 804 399
	Impôts, taxes et versements assimilés *					FX	206 676	259 338
	Salaires et traitements *					FY	1 764 148	1 313 816
	Charges sociales (10)					FZ	804 866	544 071
	DOTATIONS D'EXPLOITATION — Sur immobilisations - dotations aux amortissements *					GA	242 966	188 687
	DOTATIONS D'EXPLOITATION — Sur immobilisations - dotations aux provisions					GB		
	DOTATIONS D'EXPLOITATION — Sur actif circulant : dotations aux provisions *					GC	50 824	438 393
	DOTATIONS D'EXPLOITATION — Pour risques et charges : dotations aux provisions					GD		
	Autres charges (12)					GE	3 242	3 038
	Total des charges d'exploitation (4) (II)					GF	**7 087 276**	**6 551 741**
1 - RESULTAT D'EXPLOITATION (I-II)						GG	**2 865 365**	**8 195 336**
opérations en commun	Bénéfice attribué ou perte transférée * **(III)**					GH		
	Perte supportée ou bénéfice transféré * **(IV)**					GI		
PRODUITS FINANCIERS	Produits financiers de participations (5)					GJ	4 400 220	3 480 420
	Produits des autres valeurs mobilières et créances de l'actif immobilisé (5)					GK	1 634 478	1 124 459
	Autres intérêts et produits assimilés (5)					GL	601 392	587 667
	Reprises sur provisions et transferts de charges					GM	1 941 189	
	Différences positives de change					GN	194	17 895
	Produits nets sur cessions de valeurs mobilières de placement					GO		
	Total des produits financiers (V)					GP	**8 577 472**	**5 210 441**
CHARGES FINANCIERES	Dotations financières aux amortissements et provisions *					GQ	135 593	943 657
	Intérêts et charges assimilées (6)					GR	526 414	141 050
	Différences négatives de change					GS	1 531	384
	Charges nettes sur cessions de valeurs mobilières de placement					GT		
	Total des charges financières (VI)					GU	**663 538**	**1 085 091**
2 - RESULTAT FINANCIER (V - VI)						GV	7 913 934	**4 125 350**
3 - RESULTAT COURANT AVANT IMPOTS (I - II + III - IV + V - VI)						GW	**10 779 299**	**12 320 686**

(RENVOIS : voir tableau n° 2053) * Des explications concernant cette rubrique sont données dans la notice n° 2032

Formulaire obligatoire (article 53 A du Code général des impôts)

④ COMPTE DE RESULTAT DE L'EXERCICE (Suite)

DGFiP N° 2053 2019

Désignation de l'entreprise **SAS VALECO** — Néant ☐*

			Exercice N	Exercice N-1
PRODUITS EXCEPTIONNELS	Produits exceptionnels sur opérations de gestion	HA	16 278	**27 955**
	Produits exceptionnels sur opérations en capital *	HB	846 200	**6 728 228**
	Reprises sur provisions et transferts de charges	HC		**60 000**
	Total des produits exceptionnels (7) (VII)	HD	**862 478**	**6 816 183**
CHARGES EXCEPTIONNELLES	Charges exceptionnelles sur opérations de gestion (6 bis)	HE	4 187	**13 708**
	Charges exceptionnelles sur opérations en capital *	HF	26 129	**64 200**
	Dotations exceptionnelles aux amortissements et provisions (6 ter)	HG		
	Total des charges exceptionnelles (7) (VIII)	HH	**30 316**	**77 908**
4 - RESULTAT EXCEPTIONNEL (VII - VIII)		HI	**832 162**	**6 738 275**
Participation des salariés aux résultats de l'entreprise **(IX)**		HJ	212 187	
Impôts sur les bénéfices * **(X)**		HK	1 430 190	**2 940 294**
TOTAL DES PRODUITS (I + III + V + VII)		HL	**19 392 591**	**26 773 701**
TOTAL DES CHARGES (II + IV + VI + VIII + IX + X)		HM	**9 423 507**	**10 655 034**
5 - BENEFICE OU PERTE (Total des produits - Total des charges)		HN	**9 969 084**	**16 118 667**

RENVOIS

(1)	Dont produits nets partiels sur opérations à long terme	HO		
(2)	Dont produits de locations immobilières	HY		
	Dont produits d'exploitation afférents à des exercices antérieurs (à détailler au (8) ci-dessous)	IG		
(3)	Dont - Crédit-bail mobilier *	HP	11 128	27 953
	Dont - Crédit-bail immobilier	HQ		
(4)	Dont charges d'exploitation afférentes à des exercices antérieurs (à détailler au (8) ci-dessous)	IH		
(5)	Dont produits concernant les entreprises liées	IJ		**5 190 507**
(6)	Dont intérêts concernant les entreprises liées	IK		**92 105**
(6bis)	Dont dons faits aux organismes d'intérêt général (art. 238 bis du C.G.I.)	HX		
(6ter)	Dont amortissement des souscriptions dans des PME innovantes (art. 217 octies)	RC		
	Dont amortissement exceptionnel de 25% des constructions nouvelles (art. 39 quinquies D)	RD		
(9)	Dont transferts de charges	A1	4 537	2 797
(10)	Dont cotisations personnelles de l'exploitant (13)	A2		
(11)	Dont redevances pour concessions de brevets, de licences (produits)	A3		
(12)	Dont redevances pour concessions de brevets, de licences (charges)	A4		
(13)	Dont primes et cotisations complémentaires personnelles : facultatives A6 ; obligatoires A9			

(7) Détail des produits et charges exceptionnels (Si le nombre de lignes est insuffisant, reproduire le cadre (7) et le joindre en annexe) :

	Exercice N	
	Charges exceptionnelles	Produits exceptionnels
PCEA		844 450
SUBVENTION INVST		1 750
AAR + REMBT FRAIS		16 278
VNC	26 129	
CHARGES S/ EX ANTERIEUR	4 187	

(8) Détail des produits et charges sur exercices antérieurs :

	Exercice N	
	Charges antérieures	Produits antérieurs

* Des explications concernant cette rubrique sont données dans la notice n° 2032

10.6. Annexe 6 : Bilan 2019 de la société VALECO

Formulaire obligatoire (article 53 A du code général des impôts)

① BILAN - ACTIF — DGFiP N° 2050 2020

Désignation de l'entreprise : SAS VALECO — Durée de l'exercice exprimée en nombre de mois * : 12
Adresse de l'entreprise : 188 RUE MAURICE BEJART 34080 MONTPELLIER — Durée de l'exercice précédent * : 12
Numéro SIRET * : 4 2 1 3 7 7 9 4 6 0 0 0 3 1 — Néant ☐ *

			Brut 1	Amortissements, provisions 2	Exercice N clos le 31122019 Net 3	Exercice N-1 clos le 31122018 Net 4
	Capital souscrit non appelé (I)	AA				
ACTIF IMMOBILISÉ * — IMMOBILISATIONS INCORPORELLES	Frais d'établissement *	AB		AC		
	Frais de développement *	CX		CQ		
	Concessions, brevets et droits similaires	AF	153 646	AG	91 083	62 563	29 776
	Fonds commercial (1)	AH	110 000	AI	4 003	105 997	
	Autres immobilisations incorporelles	AJ	62 528	AK		62 528	73 065
	Avances et acomptes sur immobilisations incorporelles	AL		AM			
IMMOBILISATIONS CORPORELLES	Terrains	AN		AO			
	Constructions	AP	1 707 509	AQ	509 904	1 197 605	1 270 921
	Installations techniques, matériel et outillage industriels	AR	265 515	AS	58 467	207 048	222 024
	Autres immobilisations corporelles	AT	1 902 469	AU	561 043	1 341 426	403 054
	Immobilisations en cours	AV	43 344	AW		43 344	42 235
	Avances et acomptes	AX		AY			
IMMOBILISATIONS FINANCIÈRES (2)	Participations évaluées selon la méthode de mise en équivalence	CS		CT			
	Autres participations	CU	14 595 387	CV	85 901	14 509 486	8 697 995
	Créances rattachées à des participations	BB		BC			
	Autres titres immobilisés	BD	22 057 837	BE		22 057 837	22 888 783
	Prêts	BF		BG			
	Autres immobilisations financières *	BH	1 211 880	BI		1 211 880	1 746 397
	TOTAL (II)	BJ	**42 110 115**	BK	**1 310 400**	**40 799 715**	**35 374 248**
ACTIF CIRCULANT — STOCKS *	Matières premières, approvisionnements	BL		BM			
	En cours de production de biens	BN	617 391	BO	499 618	117 773	65 913
	En cours de production de services	BP		BQ			
	Produits intermédiaires et finis	BR		BS			
	Marchandises	BT		BU			
	Avances et acomptes versés sur commandes	BV		BW			
CRÉANCES	Clients et comptes rattachés (3) *	BX	3 271 221	BY		3 271 221	3 617 984
	Autres créances (3)	BZ	42 223 248	CA	2 260 303	39 962 945	36 225 848
	Capital souscrit et appelé, non versé	CB		CC			
DIVERS	Valeurs mobilières de placement (dont actions propres :)	CD		CE			
	Disponibilités	CF	10 714 439	CG		10 714 439	6 200 444
Comptes de régularisation	Charges constatées d'avance (3) *	CH	104 150	CI		104 150	144 738
	TOTAL (III)	CJ	**56 930 449**	CK	**2 759 921**	**54 170 528**	**46 254 927**
	Frais d'émission d'emprunt à étaler (IV)	CW					
	Primes de remboursement des obligations (V)	CM					
	Ecarts de conversion actif * (VI)	CN	3 251			3 251	50 102
	TOTAL GENERAL (I à VI)	CO	**99 043 815**	1A	**4 070 321**	**94 973 494**	**81 679 277**

Renvois : (1) Dont droit au bail : 110 000 — (2) Part à moins d'un an des immobilisations financières nettes : CP — (3) Part à plus d'un an : CR 36 311 459
Clause de réserve de propriété : * — Immobilisations : — Stocks : — Créances :
* Des explications concernant cette rubrique sont données dans la notice n° 2032

Formulaire obligatoire (article 53 A du Code général des impôts)

② BILAN - PASSIF avant répartition — DGFiP N° 2051 2020

Désignation de l'entreprise : SAS VALECO — Néant ☐ *

			Exercice N	Exercice N-1
CAPITAUX PROPRES	Capital social ou individuel (1) * (Dont versé : 11 260 449)	DA	11 260 449	11 192 751
	Primes d'émission, de fusion, d'apport, ...	DB	21 392 989	17 821 196
	Ecarts de réévaluation (2) * (dont écart d'équivalence EK)	DC		
	Réserve légale (3)	DD	1 843 260	1 843 260
	Réserves statutaires ou contractuelles	DE		
	Réserves réglementées (3) * (Dont réserve spéciale des provisions pour fluctuation des cours B1)	DF		
	Autres réserves (Dont réserve relative à l'achat d'œuvres originales d'artistes vivants * EJ)	DG		
	Report à nouveau	DH	37 616 105	27 647 021
	RESULTAT DE L'EXERCICE (bénéfice ou perte)	DI	**(1 093 587)**	**9 969 084**
	Subventions d'investissement	DJ	28 000	29 750
	Provisions réglementées *	DK	4 391	
	TOTAL (I)	DL	**71 051 607**	**68 503 062**
Autres fonds propres	Produit des émissions de titres participatifs	DM		
	Avances conditionnées	DN		
	TOTAL (II)	DO		
Provisions pour risques et charges	Provisions pour risques	DP	573 946	50 102
	Provisions pour charges	DQ		
	TOTAL (III)	DR	**573 946**	**50 102**
DETTES (4)	Emprunts obligataires convertibles	DS		
	Autres emprunts obligataires	DT		
	Emprunts et dettes auprès des établissements de crédit (5)	DU	3 951 996	3 791 805
	Emprunts et dettes financières divers (Dont emprunts participatifs EI)	DV	16 986 271	5 484 069
	Avances et acomptes reçus sur commandes en cours	DW		
	Dettes fournisseurs et comptes rattachés	DX	714 007	1 573 970
	Dettes fiscales et sociales	DY	1 282 923	1 720 130
	Dettes sur immobilisations et comptes rattachés	DZ	45 579	411
	Autres dettes	FA	51 529	28 928
Compte régul.	Produits constatés d'avance (4)	EB	230 216	526 799
	TOTAL (IV)	EC	**23 262 522**	**13 126 113**
	Ecarts de conversion passif * (V)	ED	85 420	
	TOTAL GENERAL (I à V)	EE	**94 973 494**	**81 679 277**
RENVOIS	(1) Ecart de réévaluation incorporé au capital	1B		
	(2) Dont — Réserve spéciale de réévaluation (1959)	1C		
	(2) Dont — Ecart de réévaluation libre	1D		
	(2) Dont — Réserve de réévaluation (1976)	1E		
	(3) Dont réserve spéciale des plus-values à long terme *	EF		
	(4) Dettes et produits constatés d'avance à moins d'un an	EG	2 859 051	9 576 293
	(5) Dont concours bancaires courants, et soldes créditeurs de banques et CCP	EH	5 226	4 184

* Des explications concernant cette rubrique sont données dans la notice n° 2032

Formulaire obligatoire (article 53 A du Code général des impôts)

③ COMPTE DE RESULTAT DE L'EXERCICE (En liste)

DGFiP N° 2052 2020

Désignation de l'entreprise : **SAS VALECO** — Néant ☐*

			Exercice N					Exercice (N-1)
			France		Exportations et livraisons intracommunautaires		Total	
PRODUITS D'EXPLOITATION	Ventes de marchandises *	FA		FB		FC		
	Production vendue biens*	FD	36 287	FE		FF	36 287	31 418
	Production vendue services *	FG	5 479 723	FH		FI	5 479 723	9 804 164
	Chiffres d'affaires nets*	FJ	**5 516 010**	FK		FL	**5 516 010**	**9 835 582**
	Production stockée *					FM	62 261	109 259
	Production immobilisée *					FN		
	Subventions d'exploitation					FO	3 000	2 077
	Reprises sur amortissements et provisions, transfert de charges * (9)					FP	494 794	4 537
	Autres produits (1) (11)					FQ	22 471	1 187
	Total des produits d'exploitation (2) (I)					FR	**6 098 537**	**9 952 641**
CHARGES D'EXPLOITATION	Achats de marchandises (y compris droits de douane) *					FS		
	Variation de stock (marchandises)*					FT		
	Achats de matières premières et autres approvisionnements (y compris droits de douane) *					FU		
	Variation de stock (matières premières et approvisionnements)*					FV		
	Autres achats et charges externes (3) (6 bis) *					FW	3 922 241	4 014 555
	Impôts, taxes et versements assimilés *					FX	190 539	206 676
	Salaires et traitements *					FY	2 891 690	1 764 148
	Charges sociales (10)					FZ	1 196 823	804 866
	DOTATIONS D'EXPLOITATION — Sur immobilisations - dotations aux amortissements *					GA	318 571	242 966
	DOTATIONS D'EXPLOITATION — Sur immobilisations - dotations aux provisions					GB		
	DOTATIONS D'EXPLOITATION — Sur actif circulant : dotations aux provisions *					GC	499 618	50 824
	DOTATIONS D'EXPLOITATION — Pour risques et charges : dotations aux provisions					GD		
	Autres charges (12)					GE	22 575	3 242
	Total des charges d'exploitation (4) (II)					GF	**9 042 058**	**7 087 276**
1 - RESULTAT D'EXPLOITATION (I-II)						GG	**(2 943 522)**	**2 865 365**
Opérations en commun	Bénéfice attribué ou perte transférée * **(III)**					GH		
	Perte supportée ou bénéfice transféré * **(IV)**					GI		
PRODUITS FINANCIERS	Produits financiers de participations (5)					GJ	1 860 120	4 400 220
	Produits des autres valeurs mobilières et créances de l'actif immobilisé (5)					GK	1 743 004	1 634 478
	Autres intérêts et produits assimilés (5)					GL	830 570	601 392
	Reprises sur provisions et transferts de charges					GM	72 097	1 941 189
	Différences positives de change					GN	4	194
	Produits nets sur cessions de valeurs mobilières de placement					GO		
	Total des produits financiers (V)					GP	**4 505 795**	**8 577 472**
CHARGES FINANCIERES	Dotations financières aux amortissements et provisions *					GQ	2 171 702	135 593
	Intérêts et charges assimilées (6)					GR	678 447	526 414
	Différences négatives de change					GS	17 763	1 531
	Charges nettes sur cessions de valeurs mobilières de placement					GT		
	Total des charges financières (VI)					GU	**2 867 911**	**663 538**
2 - RESULTAT FINANCIER (V - VI)						GV	**1 637 884**	**7 913 934**
3 - RESULTAT COURANT AVANT IMPOTS (I - II + III - IV + V - VI)						GW	**(1 305 638)**	**10 779 299**

(RENVOIS : voir tableau n° 2053) * Des explications concernant cette rubrique sont données dans la notice n° 2032

Formulaire obligatoire (article 53 A du Code général des impôts)

④ COMPTE DE RESULTAT DE L'EXERCICE (Suite)

DGFiP N° 2053 2020

Désignation de l'entreprise **SAS VALECO** — Néant ☐*

			Exercice N	Exercice N-1
PRODUITS EXCEPTIONNELS	Produits exceptionnels sur opérations de gestion	HA		16 278
	Produits exceptionnels sur opérations en capital *	HB	1 287 150	846 200
	Reprises sur provisions et transferts de charges	HC		
	Total des produits exceptionnels (7) (VII)	HD	**1 287 150**	**862 478**
CHARGES EXCEPTIONNELLES	Charges exceptionnelles sur opérations de gestion (6 bis)	HE	135	4 187
	Charges exceptionnelles sur opérations en capital *	HF	1 270 485	26 129
	Dotations exceptionnelles aux amortissements et provisions (6 ter)	HG	5 441	
	Total des charges exceptionnelles (7) (VIII)	HH	**1 276 061**	**30 316**
4 - RESULTAT EXCEPTIONNEL (VII - VIII)		HI	**11 089**	**832 162**
Participation des salariés aux résultats de l'entreprise **(IX)**		HJ	235 141	212 187
Impôts sur les bénéfices * **(X)**		HK	(436 102)	1 430 190
TOTAL DES PRODUITS (I + III + V + VII)		HL	**11 891 482**	**19 392 591**
TOTAL DES CHARGES (II + IV + VI + VIII + IX + X)		HM	**12 985 069**	**9 423 507**
5 - BENEFICE OU PERTE (Total des produits - Total des charges)		HN	**(1 093 587)**	**9 969 084**

RENVOIS

(1)	Dont produits nets partiels sur opérations à long terme	HO		
(2) Dont	produits de locations immobilières	HY		
	produits d'exploitation afférents à des exercices antérieurs (à détailler au (8) ci-dessous)	1G		
(3) Dont	- Crédit-bail mobilier *	HP	7 844	11 128
	- Crédit-bail immobilier	HQ		
(4)	Dont charges d'exploitation afférentes à des exercices antérieurs (à détailler au (8) ci-dessous)	1H		
(5)	Dont produits concernant les entreprises liées	1J		
(6)	Dont intérêts concernant les entreprises liées	1K		
(6bis)	Dont dons faits aux organismes d'intérêt général (art. 238 bis du C.G.I.)	HX		
(6ter)	Dont amortissement des souscriptions dans des P.M.E innovantes (art. 217 octies)	RC		
	Dont amortissement exceptionnel de 25% des constructions nouvelles (art. 39 quinquies D)	RD		
(9)	Dont transferts de charges	A1	5 578	4 537
(10)	Dont cotisations personnelles de l'exploitant (13) (dont montant des cotisations sociales obligatoires hors CSG/CRDS) A5	A2		
(11)	Dont redevances pour concessions de brevets, de licences (produits)	A3		
(12)	Dont redevances pour concessions de brevets, de licences (charges)	A4		
(13)	Dont primes et cotisations sociales personnelles facultatives A6 ; obligatoires A9 ; dont cotisations facultatives Madelin A7 ; dont cotisations facultatives aux nouveaux plans d'épargne retraite A8			

(7) Détail des produits et charges exceptionnels (Si le nombre de lignes est insuffisant, reproduire le cadre (7) et le joindre en annexe) :

	Exercice N	
	Charges exceptionnelles	Produits exceptionnels
PCEA / VNC	1 270 485	1 280 626
SUBVENTION INVST		1 750
AMENDES	135	
AMT EXCEPT ET DERO	5 441	
SOLDE CPTE		4 773

(8) Détail des produits et charges sur exercices antérieurs :

	Exercice N	
	Charges antérieures	Produits antérieurs

* Des explications concernant cette rubrique sont données dans la notice n° 2032

10.7. Annexe 7 : Lettre d'intérêt de la Caisse d'épargne CEPAC

CAISSE D'EPARGNE
CEPAC

GROUPE VALECO
A l'attention de M. DAUMARD
François, Président
188 Rue Maurice Béjart
34184 Montpellier

Objet : Lettre d'intérêt

Marseille, le 7 Novembre 2019

Monsieur Daumard,

Financier de référence des projets ENR des territoires, la Caisse d'Epargne CEPAC tient à vous souligner tout l'intérêt qu'elle porte à sa relation historique avec le Groupe VALECO débutée en 2016, désormais membre du groupe ENBW, acteur de référence du marché de l'électricité européen.

Dans cette continuité, nous demeurons prêts à étudier vos projets éoliens ou photovoltaïques pour tout ou partie de leur financement bancaires, sous réserve de l'ensemble des dues diligences usuelles et, comme il se doit, de l'éventuel accord de nos comités de crédit. Nous sommes par ailleurs prêts à étudier la mise en place de garanties financières de démantèlement et de remise en état de site conformément au décret et l'arrêté des 23 et 26 Août 2011, soit un montant de 50 000€ par éolienne.

Ces financements et garanties s'inscriraient dans le prolongement de la relation partenariale entre la Caisse d'Epargne CEPAC et VALECO, engagée au travers du financement de projets emblématiques, notamment éoliens, portant sur des portefeuilles de projets de plusieurs centaines de millions d'EUR en valeur d'investissements cumulés et de plusieurs centaines de MW en puissance cumulée.

Sur la base des informations à notre disposition à ce jour, nous sommes tout à fait convaincus dans la capacité de VALECO à développer et financer des projets d'envergure de ce type, en France comme à l'International, tout en respectant ses engagements financiers et commerciaux.

Depuis notre entrée en relation, nous avons ainsi pu noter le sérieux et le professionnalisme mis en œuvre dans la réalisation de vos projets. Nous vous souhaitons ainsi le meilleur succès dans vos futures réalisations.

Je vous prie d'agréer, Monsieur Daumard, l'expression de mes salutations distinguées.

Bien cordialement,

Amaury SCHOENAUER

Directeur des Financements Structurés

10.8. Annexe 8 : Lettre d'intention de constitution des garanties financières

valeco
PRODUCTEUR D'ENERGIES RENOUVELABLES

Lettre d'intention de constitution des garanties financières
PE des LAVIERES
Commune de Condes (52)

Je soussigné, Monsieur Audry BEAUVISAGE, dûment habilité, pour le compte de la société PE DES LAVIERES, société à responsabilité limitée au capital de 500€ ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 883 462 558 au R.C.S de MONTPELLIER,
Immatriculée depuis le 18/05/2020

Atteste conformément à l'arrêté du 26 août 2011 relatif aux installations de production d'électricité utilisant l'énergie mécanique du vent au sein d'une installation soumise à autorisation au titre de la rubrique 2980 de la législation des installations classées pour la protection de l'environnement modifié par l'arrêté du 22 juin 2020, de :

- ✓ L'intention de la société PE des LAVIERES de constituer une garantie financière auprès de la caisse régionale de crédit agricole mutuel du Languedoc,
- ✓ D'un montant de 72 000 € par éolienne,
- ✓ Avec application de l'actualisation annuel du montant des garanties financières, d'un montant total pour l'installation de 230 212,80 €
- ✓ Avant la mise en service de l'installation.

Fait à Boulogne-Billancourt, le
08/09/2020

Audry BEAUVISAGE

PE des LAVIERES
188 rue Maurice Béjart
34080 MONTPELLIER – France
Tél. 04 67 40 74 00 – Fax 04 67 40 74 05

10.9. Annexe 9 : Coordonnées des installations

Les coordonnées de l'installation sont données à titre indicatif dans le tableau suivant :

Infrastructure	X L93	Y L93	Latitude	Longitude	Altitude (m NGF)
E1	860 908,607	6 785 233,672	48°8'51,448"N	5°9'49,824"E	324
E2	861 051,482	6 785 008,335	48°8'44,024"N	5°9'56,438"E	325
E3	861 174,954	6 784 756,980	48°8'35,775"N	5°10'2,079"E	330
PDL 1	861 268,743	6 784 626,941	48°8'31,481"N	5°10'6,444"E	324

Tableau 12 : Coordonnées de l'installation (source : VALECO, 2020)

10.10.Annexe 10 : Attestations de maîtrise foncière

ATTESTATION DE MAÎTRISE FONCIÈRE

Je soussigné, Monsieur Audry BEAUVISAGE, dûment habilité, pour le compte de la société PE DES LAVIERES, société à responsabilité limitée au capital de 500€ ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 883 462 558 au R.C.S de MONTPELLIER.

ATTESTE être titulaire de promesses de baux emphytéotiques sur les parcelles suivantes :

Commune	Lieu-dit	Section	Numéro	Surface (m²)
Condes	La Femme Morte	YB	20	17 477
	La Femme Morte		21	182 813
	Le Poirier aux Ânes		23	116 244
	Le Poirier aux Ânes		24	99 838
	La Femme Morte		25	48 589

En vertu desquelles les propriétaires promettent de nous louer à bail emphytéotique les parcelles pour une durée minimum de 35 années à compter de la mise en service du parc éolien,

Et à ce titre, être dument habilité par les propriétaires à déposer toutes demandes d'autorisations administratives concernant le projet de parc éolien et plus généralement mener toutes les études nécessaires au développement du projet de parc éolien sur lesdites parcelles.

Fait pour valoir ce que de droit,

Fait à Boulogne-Billancourt le
08/09/2020
Audry BEAUVISAGE

Attestation de droits réels parcelles YB 20 et 21 :

ANNEXE 7 : ATTESTATION DE DROITS REELS

Monsieur ANCELOT Eric né le 11/04/1961 à CHAUMONT demeurant à Le Tilleul 52310 BOLOGNE, en sa qualité de Propriétaire.

Monsieur ANCELOT Jean-Marie né le 06/12/1948 à CHAUMONT demeurant à Le Tilleul 52310 BOLOGNE, en sa qualité de Propriétaire.

Propriétaires des parcelles :

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 15	0ha51a72ca
YB 20	1ha74a77ca
YB 21	18ha28a13ca

ATTESTE avoir signé une promesse de bail emphytéotiques sur les parcelles susmentionnées avec la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 440 856 938 RCS MONTPELLIER (Hérault).

En vertu desquelles je promets de donner à bail emphytéotique les parcelles pour une durée minimum de 35 années à compter de la mise en service du parc éolien.

Et à ce titre, autoriser dès à présent la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart à déposer toutes demandes d'autorisations administratives concernant le projet de parc éolien et plus généralement mener toutes les études nécessaires au développement du projet de parc éolien sur lesdites parcelles.

Fait pour valoir ce que de droit,

Fait à Boulogne
le 20 août 2020

Signatures

ANCELOT Eric
ANCELOT Jean-Marie

V 3.84

Attestation de droits réels parcelle YB 23 :

ANNEXE 7 : ATTESTATION DE DROITS REELS

Groupement foncier agricole des sablières au numéro de SIRET : 80428951000013 dont le gérant est monsieur DORE Christian né le 26/06/1957 à CHAUMONT demeurant au 13 Rue de la Montagne 52 000 CONDES, en sa qualité de Propriétaire.

Propriétaires des parcelles :

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 23	11ha62a44ca

ATTESTE avoir signé une promesse de bail emphytéotiques sur les parcelles susmentionnées avec la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 440 856 938 RCS MONTPELLIER (Hérault),

En vertu desquelles je promets de donner à bail emphytéotique les parcelles pour une durée minimum de 35 années à compter de la mise en service du parc éolien.

Et à ce titre, autoriser dès à présent la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart à déposer toutes demandes d'autorisations administratives concernant le projet de parc éolien et plus généralement mener toutes les études nécessaires au développement du projet de parc éolien sur lesdites parcelles.

Fait pour valoir ce que de droit,

Fait à Condes le 15 Janvier 2018

Signatures

Groupement foncier agricole des sablières
(Gérant Christian DORE)

V 5.84

Attestation de droits réels parrcelle YB 24 :

ANNEXE 7 : ATTESTATION DE DROITS REELS

Monsieur DORE Robert né le 05/01/1930 à CONDES et Madame VAGNERRE Marie née le 06/06/1932 à CHAUMONT demeurant au 15 Rue de la Montagne 52 000 CONDES, en leur qualité d'Usufruitier et Usufruitière en Indivision.

Monsieur DORE Christian né le 26/06/1957 à CHAUMONT demeurant au 13 Rue de la Montagne 52 000 CONDES, en sa qualité de Nu-Propriétaire.

Propriétaires des parcelles :

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 24	9ha98a38ca

ATTESTE avoir signé une promesse de bail emphytéotiques sur les parcelles susmentionnées avec la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 440 856 938 RCS MONTPELLIER (Hérault),

En vertu desquelles je promets de donner à bail emphytéotique les parcelles pour une durée minimum de 35 années à compter de la mise en service du parc éolien.

Et à ce titre, autoriser dès à présent la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart à déposer toutes demandes d'autorisations administratives concernant le projet de parc éolien et plus généralement mener toutes les études nécessaires au développement du projet de parc éolien sur lesdites parcelles.

Fait pour valoir ce que de droit,

Fait à Condes le 15 Janvier 2018

Signatures

DORE Christian
DORE Robert
VAGNERRE Marie

V 5.84

Attestation de droits réels parcelle YB 25 :

ANNEXE 7 : ATTESTATION DE DROITS REELS

Monsieur DIDIER-NOEL Gilles né le 30/08/1931 à CHAUMONT demeurant au 14 Rue de Dijon 52 000 CHAUMONT, en sa qualité de Propriétaire.

Propriétaires des parcelles :

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 25	4ha85a89ca

ATTESTE avoir signé une promesse de bail emphytéotiques sur les parcelles susmentionnées avec la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 440 856 938 RCS MONTPELLIER (Hérault),

En vertu desquelles je promets de donner à bail emphytéotique les parcelles pour une durée minimum de 35 années à compter de la mise en service du parc éolien.

Et à ce titre, autoriser dès à présent la société VALECO INGENIERIE, Société par Actions Simplifiée, au capital de 8.000,00 € ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart à déposer toutes demandes d'autorisations administratives concernant le projet de parc éolien et plus généralement mener toutes les études nécessaires au développement du projet de parc éolien sur lesdites parcelles.

Fait pour valoir ce que de droit,

Fait à ...
le ...

Signatures

DIDIER-NOEL Gilles

V 5.84

10.11.Annexe 11 : Compatibilité avec les documents d'urbanisme

ATTESTATION DE CONFORMITE A L'URBANISME

Je soussigné, Monsieur Audry BEAUVISAGE, dûment habilité, pour le compte de la société PE DES LAVIERES, société à responsabilité limitée au capital de 500€ ayant son siège social à MONTPELLIER (Hérault) 188, rue Maurice Béjart, identifiée sous le numéro SIREN 883 462 558 au R.C.S de MONTPELLIER,

ATTESTE que le parc éolien des Lavières est compatible aux règles d'urbanisme de la commune de Condes.

Le territoire communal de Condes dispose d'un PLU approuvé en juillet 2015. Le projet des Lavières respecte les dispositions de l'Article L553-1 du code de l'environnement. En effet, les éoliennes du projet se situent à plus de 500m des constructions à usage d'habitation, des immeubles habités et des zones destinées à l'habitation telles que définies dans les documents d'urbanisme en vigueur (le PLU de la commune).

Selon le zonage du PLU, les éoliennes projetées se situent en zone agricole (A). Le règlement du PLU autorise en zone A « Les constructions et installations nécessaires aux services publics ou d'intérêt collectif et à l'exploitation agricole ».

L'Article A7 du PLU prévoit une distance d'implantation des constructions par rapport aux limites séparatives au moins égales à une hauteur de la construction. L'Article A10 du PLU fixe une hauteur maximum de 15m pour la construction de bâtiments en zone A.
Ces deux Articles ne sont pas applicables au projet éolien des Lavières. En effet, par un arrêt du 26 octobre 2021, (n°19DA02392), la Cour Administrative d'Appel de Douai établit que la règle de hauteur posée par un plan local d'urbanisme n'est pas applicable à l'autorisation d'une installation classée :

« *En ce qui concerne la règle de hauteur posée par le plan local d'urbanisme :*
[…]
3. En vertu de l'article L. 123-5 du code de l'urbanisme devenu son article L. 152-1, le règlement et les documents graphiques du plan local d'urbanisme qui lui a succédé sont opposables à l'ouverture des installations classées appartenant aux catégories déterminées dans le plan. Il en résulte que les prescriptions de celui-ci qui déterminent les conditions d'utilisation et d'occupation des sols et les natures d'activités interdites ou limitées, mais non les autres règles du plan local d'urbanisme, s'imposent aux autorisations d'exploiter délivrées au titre de la législation des installations classées. »
Par ailleurs, en date du 7 juin 2018, le conseil communautaire a prescrit l'élaboration d'un Plan Local d'Urbanisme intercommunal ayant valeur de Plan Local de l'Habitat.
L'approbation de ce PLUi rendra caduque les PLU des communes de la Communauté de communes de l'Agglomération de Chaumont. Le PLUi sera compatible avec le SCoT du Pays de Chaumont approuvé par les élus du Syndicat Mixte le 13 février 2020.

PE DES LAVIERES
valeco
PRODUCTEUR D'ÉNERGIES RENOUVELABLES
188 rue Maurice Béjart – CS 57392 - 34184 MONTPELLIER Cedex 4 – France
Tél. 04 67 40 74 00 – Fax 04 67 40 74 05 – www.groupevaleco.com

ATTESTATION DE CONFORMITE A L'URBANISME

Le projet de parc éolien des Lavières est donc compatible avec le PLU de la commune de Condes. De plus, une procédure d'évolution des documents d'urbanisme intercommunaux est en cours et permettra, au moment de la délivrance de l'autorisation administrative, la compatibilité entre le projet éolien et l'affectation des sols. [*13° du I. de l'article D.181-15-2 du code de l'environnement*]

Fait pour valoir ce que de droit,

Fait à Boulogne Billancourt le 23/11/2021
Audry BEAUVISAGE

PE DES LAVIERES
valeco
PRODUCTEUR D'ÉNERGIES RENOUVELABLES
188 rue Maurice Béjart – CS 57392 - 34184 MONTPELLIER Cedex 4 – France
Tél. 04 67 40 74 00 – Fax 04 67 40 74 05 – www.groupevaleco.com

10.12.Annexe 12 : Avis du maire de la commune d'accueil du projet sur la remise en état du site

10.12.1. Agglomération de Chaumont

AVIS SUR LES CONDITIONS DE REMISE EN ETAT DU SITE LORS DE L'ARRET DEFINITIF DU PARC EOLIEN

LRAR n° 1A 187 902 5252 3

L'Agglomération de Chaumont, dans le département de la Haute-Marne, identifiée sous le numéro SIREN 245 200 456, représentée par Monsieur Stéphane MARTINELLI, en sa qualité de Président, dûment habilité.

1) Sur la commune de CONDES (Haute-Marne)

Section parcelle	N° parcelle	Superficie parcelle (m²)
YB	20	17 477
YB	21	182 813
YB	23	116 244
YB	24	99 838
YB	25	48 589

Donne un avis favorable aux conditions de démantèlement des éoliennes/câbles/chemins d'accès/postes de livraison, et de remise en état du site, afin que ces parcelles retrouvent leur(s) usage(s) agricole, selon les dispositions reprises ci-dessous :

Le démantèlement et la remise en état du site après l'arrêt définitif du projet éolien seront à la charge du maître d'ouvrage.

Selon l'article 29 de l'arrêté du 26 août 2011 relatif aux installations de production d'électricité utilisant l'énergie mécanique du vent au sein d'une installation soumise à autorisation au titre de la rubrique 2980 de la législation des installations classées pour la protection de l'environnement, modifié par l'arrêté du 22 juin 2020 et abrogeant l'arrêté du 26 août 2011 relatif au :

« I. - Les opérations de démantèlement et de remise en état prévues à l'article R. 515-106 du code de l'environnement comprennent :

- le démantèlement des installations de production d'électricité, des postes de livraison ainsi que les câbles dans un rayon de 10 mètres autour des aérogénérateurs et des postes de livraison ;

- l'excavation de la totalité des fondations jusqu'à la base de leur semelle, à l'exception des éventuels pieux. Par dérogation, la partie inférieure des fondations peut être maintenue dans le sol sur la base d'une étude adressée au préfet démontrant que le bilan environnemental du décaissement total est défavorable, sans que la profondeur excavée ne puisse être inférieure à 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme

opposable et 1 m dans les autres cas. Les fondations excavées sont remplacées par des terres de caractéristiques comparables aux terres en place à proximité de l'installation ;

- la remise en état du site avec le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.

II. - Les déchets de démolition et de démantèlement sont réutilisés, recyclés, valorisés, ou à défaut éliminés dans les filières dûment autorisées à cet effet.

Au 1er juillet 2022, au minimum 90 % de la masse totale des aérogénérateurs démantelés, fondations incluses, lorsque la totalité des fondations sont excavées, ou 85 % lorsque l'excavation des fondations fait l'objet d'une dérogation prévue par le I, doivent être réutilisés ou recyclés.
Au 1er juillet 2022, au minimum, 35 % de la masse des rotors doivent être réutilisés ou recyclées.
Les aérogénérateurs dont le dossier d'autorisation complet est déposé après les dates suivantes ainsi que les aérogénérateurs mis en service après cette même date dans le cadre d'une modification notable d'une installation existante, doivent avoir au minimum :
- après le 1er janvier 2024, 95 % de leur masse totale, tout ou partie des fondations incluses, réutilisable ou recyclable ;
- après le 1er janvier 2023, 45 % de la masse de leur rotor réutilisable ou recyclable ;
- après le 1er janvier 2025, 55 % de la masse de leur rotor réutilisable ou recyclable.

En ce qui concerne la remise en état des chemins d'accès créés lors de la phase de construction, ils seront restitués à l'état initial ou conservés par le propriétaire si celui-ci le souhaite, afin que la parcelle en question puisse être de nouveau exploitée dans sa totalité : le substrat calcaire (couche supérieure des chemins) sera enlevé et réutilisé pour d'autres chemins ; la couche inférieure, s'étant tassée au fil des années, sera broyée afin de la rendre propre à l'exploitation ; et de la terre végétale sera ensuite déposée au-dessus.

En absence de réponse sous 45 jours, l'acceptation est tacite en application du R.181-15-2 alinéa I.11 du Code de l'environnement.

Fait à ..... le .....

SIGNATURE DU PRESIDENT

EXTRAIT de COPIE de l'arrêté du 22 juin 2020 abrogeant l'arrêté du 26 août 2011 relatif à la remise en état et à la constitution de garanties financières et modifiant et modifiant l'arrêté du 26 août 2011 relatif aux prescriptions sur les installations éoliennes soumises à autorisation (Section 7 et 8 et annexes)

Art. 15. – Le 1° alinéa de l'article 21 est remplacé par :

« Les déchets non dangereux (définis à l'article R. 541-8 du code de l'environnement) et non souillés par des produits toxiques ou polluants sont récupérés, valorisés ou éliminés dans des installations autorisées. »

Art. 16. – L'article 22 est remplacé par :

« *Art. 22.* – Des consignes de sécurité sont établies et portées à la connaissance du personnel en charge de l'exploitation et de la maintenance. Ces consignes indiquent :

« – les procédures d'arrêt d'urgence et de mise en sécurité de l'installation ;

« – les limites de sécurité de fonctionnement et d'arrêt (notamment pour les défauts de structures des pales et du mât, pour les limites de fonctionnement des dispositifs de secours notamment les batteries, pour les défauts de serrages des brides) ;

« – les précautions à prendre avec l'emploi et le stockage de produits incompatibles ;

« – les procédures d'alertes avec les numéros de téléphone du responsable d'intervention de l'établissement, des services d'incendie et de secours ;

« – le cas échéant, les informations à transmettre aux services de secours externes (procédures à suivre par les personnels afin d'assurer l'accès à l'installation aux services d'incendie et de secours et de faciliter leur intervention).

« Les consignes de sécurité indiquent également les mesures à mettre en œuvre afin de maintenir les installations en sécurité dans les situations suivantes : survitesse, conditions de gel, orages, tremblements de terre, haubans rompus ou relâchés, défaillance des freins, balourd du rotor, fixations détendues, défauts de lubrification, tempêtes de sables, incendie ou inondation. »

Art. 17. – L'article 23 est remplacé par :

« *Art. 23.* – En cas de détection d'un fonctionnement anormal notamment en cas d'incendie ou d'entrée en survitesse d'un aérogénérateur, l'exploitant ou une personne qu'il aura désigné et formé est en mesure :

« – de mettre en œuvre les procédures d'arrêt d'urgence mentionnées à l'article 22 dans un délai maximal de 60 minutes suivant l'entrée en fonctionnement anormal de l'aérogénérateur ;

« – de transmettre l'alerte aux services d'urgence compétents dans un délai de 15 minutes suivant l'entrée en fonctionnement anormal de l'aérogénérateur. »

Art. 18. – L'article 24 remplacé par :

« *Art. 24.* – Chaque aérogénérateur est doté de moyens de lutte et de prévention contre les conséquences d'un incendie appropriés aux risques et conformes aux normes en vigueur, composé a minima de deux extincteurs placés à l'intérieur de l'aérogénérateur, au sommet et au pied de celui-ci. Ils sont positionnés de façon bien visible et facilement accessibles. Les agents d'extinction sont appropriés aux risques à combattre. Cette disposition ne s'applique pas aux aérogénérateurs ne disposant pas d'accès à l'intérieur du mât. »

Art. 19. – L'article 25 est remplacé par :

« *Art. 25.* – Chaque aérogénérateur est équipé d'un système permettant de détecter ou de déduire la formation de glace sur les pales de l'aérogénérateur. En cas de formation importante de glace, l'aérogénérateur est mis à l'arrêt dans un délai maximal de 60 minutes. L'exploitant définit une procédure de redémarrage de l'aérogénérateur en cas d'arrêt automatique lié à la présence de glace sur les pales permettant de prévenir la projection de glace. Cette procédure figure parmi les consignes de sécurité mentionnées à l'article 22.

« Lorsqu'un référentiel technique permettant de déterminer l'importance de glace formée nécessitant l'arrêt de l'aérogénérateur est reconnu par le ministre des installations classées, l'exploitant respecte les règles prévues par ce référentiel.

« Cet article n'est pas applicable aux installations pour lesquelles l'exploitant démontre, notamment sur la base de données météorologiques ou de caractéristiques techniques des aérogénérateurs, que l'installation n'est pas susceptible de générer un risque de projection de glace. »

Art. 20. – Après l'article 28, il est ajouté :

« *Section 7*

« *Démantèlement*

« *Art. 29.* – I. – Les opérations de démantèlement et de remise en état prévues à l'article R. 515-106 du code de l'environnement comprennent :

« – le démantèlement des installations de production d'électricité, des postes de livraison ainsi que les câbles dans un rayon de 10 mètres autour des aérogénérateurs et des postes de livraison ;

« – l'excavation de la totalité des fondations jusqu'à la base de leur semelle, à l'exception des éventuels pieux. Par dérogation, la partie inférieure des fondations peut être maintenue dans le sol sur la base d'une étude adressée au préfet démontrant que le bilan environnemental du décaissement total est défavorable, sans que la profondeur excavée ne puisse être inférieure à 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable et 1 m dans les autres cas. Les fondations excavées sont remplacées par des terres de caractéristiques comparables aux terres en place à proximité de l'installation ;

« – la remise en état du site avec le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.

« II. – Les déchets de démolition et de démantèlement sont réutilisés, recyclés, valorisés, ou à défaut éliminés dans les filières dûment autorisées à cet effet.

« Au 1er juillet 2022, au minimum 90 % de la masse totale des aérogénérateurs démantelés, fondations incluses, lorsque la totalité des fondations sont excavées, ou 85 % lorsque l'excavation des fondations fait l'objet d'une dérogation prévue par le I, doivent être réutilisés ou recyclés.

« Au 1er juillet 2022, au minimum, 35 % de la masse des rotors doivent être réutilisés ou recyclées.

« Les aérogénérateurs dont le dossier d'autorisation complet est déposé après les dates suivantes ainsi que les aérogénérateurs mis en service après cette même date dans le cadre d'une modification notable d'une installation existante, doivent avoir au minimum :

« – après le 1er janvier 2024, 95 % de leur masse totale, tout ou partie des fondations incluses, réutilisable ou recyclable ;

« – après le 1er janvier 2023, 45 % de la masse de leur rotor réutilisable ou recyclable ;

« – après le 1er janvier 2025, 55 % de la masse de leur rotor réutilisable ou recyclable.

« *Section 8*

« *Garanties financières*

« *Art. 30.* – Le montant des garanties financières mentionnées à l'article R. 515-101 du code de l'environnement est déterminé selon les dispositions de l'annexe I du présent arrêté.

« *Art. 31.* L'exploitant actualise tous les cinq ans le montant de la garantie financière, par application de la formule mentionnée en annexe II au présent arrêté.

« *Art. 32.* – L'arrêté préfectoral fixe le montant de la garantie financière. »

Art. 21. – Les annexes I et II au présent arrêté sont ajoutées en annexe de l'arrêté mentionné à l'article 1er.

Art. 22. – L'arrêté du 26 août 2011 modifié relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent, pris en application du II de l'article L. 515-101, est abrogé.

Toute référence à cet arrêté est remplacée par la référence à l'arrêté mentionné à l'article 1er.

Art. 23. – I. – Les dispositions du présent arrêté sont applicables :

– au 1er juillet 2020 pour les articles 1er à 16 et 20 à 22 ;

– au 1er janvier 2021 pour les articles 17 à 19.

II. – Par dérogation au I, l'obligation prévue par l'article 3 du présent arrêté que les rapports et justificatifs soient dans leur version française est portée au 1er juillet 2022 pour les documents visés aux articles 6 à 8 du présent arrêté.

Art. 24. – Le présent arrêté sera publié au *Journal officiel* de la République française.

Fait le 22 juin 2020.

Pour la ministre et par délégation :
Le directeur général
de la prévention des risques,
C. Bourillet

« *ANNEXES*

« ANNEXE I

« CALCUL DU MONTANT INITIAL DE LA GARANTIE FINANCIÈRE

« I. – Le montant initial de la garantie financière d'une installation correspond à la somme du coût unitaire forfaitaire (Cu) de chaque aérogénérateur composant cette installation :

$$M = \Sigma(Cu)$$

« où :

« – M est le montant initial de la garantie financière d'une installation ;

« – *Cu* est le coût unitaire forfaitaire d'un aérogénérateur, calculé selon les dispositions du II de l'annexe I du présent arrêté. Il correspond aux opérations de démantèlement et de remise en état d'un site après exploitation prévues à l'article R. 515-36 du code de l'environnement.

« II. – Le coût unitaire forfaitaire d'un aérogénérateur (Cu) est fixé par les formules suivantes :

« *a)* lorsque la puissance unitaire installée de l'aérogénérateur est inférieure ou égale à 2 MW :

$$Cu = 50\,000$$

« *b)* lorsque sa puissance unitaire installée de l'aérogénérateur est supérieure à 2 MW :

$$Cu = 50\,000 + 10\,000 * (P-2)$$

« où :

« – *Cu* est le montant initial de la garantie financière d'un aérogénérateur ;

« – P est la puissance unitaire installée de l'aérogénérateur, en mégawatt (MW).

« III. – En cas de renouvellement de toute ou partie de l'installation, le montant initial de la garantie financière d'une installation est réactualisé en fonction de la puissance des nouveaux aérogénérateurs. La réactualisation fait l'objet d'un arrêté préfectoral pris dans les formes de l'article L. 181-14 du code de l'environnement.

« ANNEXE II

« FORMULE D'ACTUALISATION DES COÛTS

$$M_n = M \times \left(\frac{\text{Index}_n}{\text{Index}_0} \times \frac{1 + \text{TVA}}{1 + \text{TVA}_0}\right)$$

« où

« Mn est le montant exigible à l'année n.

« M est le montant initial de la garantie financière de l'installation.

« Indexn est l'indice TP01 en vigueur à la date d'actualisation du montant de la garantie.

« Indexo est l'indice TP01 en vigueur au 1er janvier 2011, fixé à 102,1807 calculé sur la base 20.

« TVA est le taux de la taxe sur la valeur ajoutée applicable aux travaux de construction à la date d'actualisation de la garantie.

« TVAo est le taux de la taxe sur la valeur ajoutée au 1er janvier 2011, soit 19,60 %. »

10.13.Annexe 13 : Avis des propriétaires sur la remise en état

Parcelles YB 20 et 21 :

ANNEXE 6 - AVIS SUR LES CONDITIONS DE REMISE EN ETAT DU SITE LORS DE L'ARRET DEFINITIF DU PARC EOLIEN

Monsieur ANCELOT Eric né le 11/04/1961 à CHAUMONT demeurant à Le Tilleul 52310 BOLOGNE, en sa qualité de Propriétaire.

Monsieur ANCELOT Jean-Marie né le 06/12/1948 à CHAUMONT demeurant à Le Tilleul 52310 BOLOGNE, en sa qualité de Propriétaire.

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 15	0ha51a72ca
YB 20	1ha74a77ca
YB 21	18ha28a13ca

Déclare accepter l'exploitation des éoliennes et équipements annexes, et donne un avis favorable aux conditions de démantèlement des éoliennes/câbles/chemins d'accès/postes de livraison, et de remise en état du site, afin que ces parcelles retrouvent leur usage agricole, selon les dispositions reprises ci-dessous :

Le démantèlement et la remise en état du site après l'arrêt définitif du projet éolien seront à la charge du maître d'ouvrage.

Selon l'article 1er de l'arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent : *« Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R553-6 du code de l'environnement comprennent :*

1- *Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».*

2- *L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :*
   - *Sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;*
   - *Sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;*
   - *Sur une profondeur minimale de 1 mètre dans les autres cas.*

AE JM GO

V 5.84

3- *La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état. »*

A la fin de la durée d'exploitation du parc:

Les parties constituant l'éolienne, c'est-à-dire les pales, la nacelle et la tour seront démontées de la même façon qu'elles ont été installées. Les travaux nécessiteront l'utilisation d'une grue principale et d'une grue auxiliaire.

Dans le paragraphe 2° de l'article du 1er de l'arrêté du 26 août 2011, la profondeur minimale s'entend avant travaux de dépose (démantèlement) des Eoliennes et/ou Installations annexes, de façon à restituer l'environnement initial de la Parcelle sur les plans agricole et paysager. Cette opération visant au rétablissement de l'activité agricole ou forestière consistera en un apport de terre végétale non mélangée permettant d'atteindre un niveau de sol au moins égal à celui existant sur le reste de la Parcelle.

En ce qui concerne la remise en état des chemins d'accès créés lors de la phase de construction, ils seront restitués à l'état initial ou conservés par le propriétaire si celui-ci le souhaite, afin que la parcelle en question puisse être de nouveau exploitée dans sa totalité : le substrat calcaire (couche supérieure des chemins) sera enlevé et réutilisé pour d'autres chemins ; la couche inférieure, s'étant tassée au fil des années, sera broyée afin de la rendre propre à l'exploitation ; et de la terre végétale sera ensuite déposée au-dessus.

Fait à Bologne le 20.01.2018

Signatures

ANCELOT Eric
ANCELOT Jean-Marie

AE JM GO

V 5.84

COPIE DE L'ARRÊTÉ DU 26 AOÛT 2011 RELATIF À LA REMISE EN ÉTAT

Décrets, arrêtés, circulaires

TEXTES GÉNÉRAUX

MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE, DES TRANSPORTS ET DU LOGEMENT

Arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent

NOR : *DEVP1120918A*

La ministre de l'écologie, du développement durable, des transports et du logement,
Vu le code de l'environnement, notamment le titre Ier de son livre V ;
Vu l'avis des organisations professionnelles concernées ;
Vu l'avis du Conseil supérieur de la prévention des risques technologiques en date du 22 mars 2011,

Arrête :

Art. 1er. – Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R. 553-6 du code de l'environnement comprennent :

1. Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».

2. L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :
- sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;
- sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;
- sur une profondeur minimale de 1 mètre dans les autres cas.

3. La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.

Les déchets de démolition et de démantèlement sont valorisés ou éliminés dans les filières dûment autorisées à cet effet.

Art. 2. – Le montant des garanties financières mentionnées aux articles R. 553-1 à R. 553-4 du code de l'environnement est déterminé par application de la formule mentionnée en annexe I au présent arrêté.

Art. 3. – L'exploitant réactualise chaque année le montant de la garantie financière, par application de la formule mentionnée en annexe II au présent arrêté.

Art. 4. – L'arrêté préfectoral d'autorisation fixe le montant initial de la garantie financière et précise l'indice utilisé pour calculer le montant de cette garantie.

Art. 5. – Le directeur général de la prévention des risques est chargé de l'exécution du présent arrêté, qui sera publié au *Journal officiel* de la République française.

Fait le 26 août 2011.

Pour la ministre et par délégation :
Le directeur général
de la prévention des risques,
L. MICHEL

V 5.84

ANNEXES

ANNEXE I

CALCUL DU MONTANT INITIAL DE LA GARANTIE FINANCIÈRE

$$M = N \times C_u$$

où
N est le nombre d'unités de production d'énergie (c'est-à-dire d'aérogénérateurs).
C_u est le coût unitaire forfaitaire correspondant au démantèlement d'une unité, à la remise en état des terrains, à l'élimination ou à la valorisation des déchets générés. Ce coût est fixé à 50 000 euros.

ANNEXE II

FORMULE D'ACTUALISATION DES COÛTS

$$M_n = M \times \left(\frac{Index_n}{Index_0} \times \frac{1 + TVA}{1 + TVA_0} \right)$$

où
M_n est le montant exigible à l'année n.
M est le montant obtenu par application de la formule mentionnée à l'annexe I.
$Index_n$ est l'indice TP01 en vigueur à la date d'actualisation du montant de la garantie.
$Index_0$ est l'indice TP01 en vigueur au 1er janvier 2011.
TVA est le taux de la taxe sur la valeur ajoutée applicable aux travaux de construction à la date d'actualisation de la garantie.
TVA_0 est le taux de la taxe sur la valeur ajoutée au 1er janvier 2011, soit 19,60 %.

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Parcelle YB 23

ANNEXE 6 - AVIS SUR LES CONDITIONS DE REMISE EN ETAT DU SITE LORS DE L'ARRET DEFINITIF DU PARC EOLIEN

Groupement foncier agricole des sablières au numéro de SIRET : 80428951000013 dont le gérant est monsieur DORE Christian né le 26/06/1957 à CHAUMONT demeurant au 13 Rue de la Montagne 52 000 CONDES, en sa qualité de Propriétaire.

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 23	11ha62a44ca

Déclare accepter l'exploitation des éoliennes et équipements annexes, et donne un avis favorable aux conditions de démantèlement des éoliennes/câbles/chemins d'accès/postes de livraison, et de remise en état du site, afin que ces parcelles retrouvent leur usage agricole, selon les dispositions reprises ci-dessous :

Le démantèlement et la remise en état du site après l'arrêt définitif du projet éolien seront à la charge du maître d'ouvrage.

Selon l'article 1er de l'arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent : *« Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R553-6 du code de l'environnement comprennent :*

1- *Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».*

2- *L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :*
   - *Sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;*
   - *Sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;*
   - *Sur une profondeur minimale de 1 mètre dans les autres cas.*

3- *La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état. »*

V 5.84

A la fin de la durée d'exploitation du parc:

Les parties constituant l'éolienne, c'est-à-dire les pales, la nacelle et la tour seront démontées de la même façon qu'elles ont été installées. Les travaux nécessiteront l'utilisation d'une grue principale et d'une grue auxiliaire.

Dans le paragraphe 2° de l'article du 1er de l'arrêté du 26 août 2011, la profondeur minimale s'entend avant travaux de dépose (démantèlement) des Eoliennes et/ou Installations annexes, de façon à restituer l'environnement initial de la Parcelle sur les plans agricole et paysager. Cette opération visant au rétablissement de l'activité agricole ou forestière consistera en un apport de terre végétale non mélangée permettant d'atteindre un niveau de sol au moins égal à celui existant sur le reste de la Parcelle.

En ce qui concerne la remise en état des chemins d'accès créés lors de la phase de construction, ils seront restitués à l'état initial ou conservés par le propriétaire si celui-ci le souhaite, afin que la parcelle en question puisse être de nouveau exploitée dans sa totalité : le substrat calcaire (couche supérieure des chemins) sera enlevé et réutilisé pour d'autres chemins ; la couche inférieure, s'étant tassée au fil des années, sera broyée afin de la rendre propre à l'exploitation ; et de la terre végétale sera ensuite déposée au-dessus.

Fait à Condes le 15 Janvier 2018

Signatures

Groupement foncier agricole des sablières
(Gérant Christian DORE)

V 5.84

COPIE DE L'ARRÊTÉ DU 26 AOÛT 2011 RELATIF À LA REMISE EN ÉTAT

Décrets, arrêtés, circulaires

TEXTES GÉNÉRAUX

MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE, DES TRANSPORTS ET DU LOGEMENT

Arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent

NOR : *DEVP1120019A*

La ministre de l'écologie, du développement durable, des transports et du logement,

Vu le code de l'environnement, notamment le titre Ier de son livre V ;

Vu l'avis des organisations professionnelles concernées ;

Vu l'avis du Conseil supérieur de la prévention des risques technologiques en date du 22 mars 2011,

Arrête :

Art. 1er. – Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R. 553-6 du code de l'environnement comprennent :

1. Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».

2. L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :

– sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;

– sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;

– sur une profondeur minimale de 1 mètre dans les autres cas.

3. La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.

Les déchets de démolition et de démantèlement sont valorisés ou éliminés dans les filières dûment autorisées à cet effet.

Art. 2. – Le montant des garanties financières mentionnées aux articles R. 553-1 à R. 553-4 du code de l'environnement est déterminé par application de la formule mentionnée en annexe I au présent arrêté.

Art. 3. – L'exploitant réactualise chaque année le montant de la garantie financière, par application de la formule mentionnée en annexe II au présent arrêté.

Art. 4. – L'arrêté préfectoral d'autorisation fixe le montant initial de la garantie financière et précise l'indice utilisé pour calculer le montant de cette garantie.

Art. 5. – Le directeur général de la prévention des risques est chargé de l'exécution du présent arrêté, qui sera publié au *Journal officiel* de la République française.

Fait le 26 août 2011.

Pour la ministre et par délégation :
Le directeur général
de la prévention des risques,
L. MICHEL

ANNEXES

ANNEXE I

CALCUL DU MONTANT INITIAL DE LA GARANTIE FINANCIÈRE

$$M = N \times C_u$$

où

N est le nombre d'unités de production d'énergie (c'est-à-dire d'aérogénérateurs).

C_u est le coût unitaire forfaitaire correspondant au démantèlement d'une unité, à la remise en état des terrains, à l'élimination ou à la valorisation des déchets générés. Ce coût est fixé à 50 000 euros.

ANNEXE II

FORMULE D'ACTUALISATION DES COÛTS

$$M_n = M \times \left(\frac{Index_n}{Index_0} \times \frac{1+TVA}{1+TVA_0} \right)$$

où

M_n est le montant exigible à l'année n.

M est le montant obtenu par application de la formule mentionnée à l'annexe I.

$Index_n$ est l'indice TP01 en vigueur à la date d'actualisation du montant de la garantie.

$Index_0$ est l'indice TP01 en vigueur au 1er janvier 2011.

TVA est le taux de la taxe sur la valeur ajoutée applicable aux travaux de construction à la date d'actualisation de la garantie.

TVA_0 est le taux de la taxe sur la valeur ajoutée au 1er janvier 2011, soit 19,60 %.

Parcelle YB 24 :

ANNEXE 6 - AVIS SUR LES CONDITIONS DE REMISE EN ETAT DU SITE LORS DE L'ARRET DEFINITIF DU PARC EOLIEN

Monsieur DORE Robert né le 05/01/1930 à CONDES et Madame VAGNERRE Marie née le 06/06/1932 à CHAUMONT demeurant au 15 Rue de la Montagne 52 000 CONDES, en leur qualité d'Usufruitier et Usufruitière en Indivision.

Monsieur DORE Christian né le 26/06/1957 à CHAUMONT demeurant au 13 Rue de la Montagne 52 000 CONDES, en sa qualité de Nu-Propriétaire.

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 24	9ha98a38ca

Déclare accepter l'exploitation des éoliennes et équipements annexes, et donne un avis favorable aux conditions de démantèlement des éoliennes/câbles/chemins d'accès/postes de livraison, et de remise en état du site, afin que ces parcelles retrouvent leur usage agricole, selon les dispositions reprises ci-dessous :

Le démantèlement et la remise en état du site après l'arrêt définitif du projet éolien seront à la charge du maître d'ouvrage.

Selon l'article 1er de l'arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent : *« Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R553-6 du code de l'environnement comprennent :*

1- *Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».*

2- *L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :*
   - *Sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;*
   - *Sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;*
   - *Sur une profondeur minimale de 1 mètre dans les autres cas.*

3- *La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état. »*

V 5.84

A la fin de la durée d'exploitation du parc:

Les parties constituant l'éolienne, c'est-à-dire les pales, la nacelle et la tour seront démontées de la même façon qu'elles ont été installées. Les travaux nécessiteront l'utilisation d'une grue principale et d'une grue auxiliaire.

Dans le paragraphe 2° de l'article du 1er de l'arrêté du 26 août 2011, la profondeur minimale s'entend avant travaux de dépose (démantèlement) des Eoliennes et/ou Installations annexes, de façon à restituer l'environnement initial de la Parcelle sur les plans agricole et paysager. Cette opération visant au rétablissement de l'activité agricole ou forestière consistera en un apport de terre végétale non mélangée permettant d'atteindre un niveau de sol au moins égal à celui existant sur le reste de la Parcelle.

En ce qui concerne la remise en état des chemins d'accès créés lors de la phase de construction, ils seront restitués à l'état initial ou conservés par le propriétaire si celui-ci le souhaite, afin que la parcelle en question puisse être de nouveau exploitée dans sa totalité : le substrat calcaire (couche supérieure des chemins) sera enlevé et réutilisé pour d'autres chemins ; la couche inférieure, s'étant tassée au fil des années, sera broyée afin de la rendre propre à l'exploitation ; et de la terre végétale sera ensuite déposée au-dessus.

Fait à Condes le 15 Janvier 2018

Signatures

DORE Christian
DORE Robert
VAGNERRE Marie

V 5.84

COPIE DE L'ARRÊTÉ DU 26 AOÛT 2011 RELATIF À LA REMISE EN ÉTAT

Décrets, arrêtés, circulaires

TEXTES GÉNÉRAUX

MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE, DES TRANSPORTS ET DU LOGEMENT

Arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent

NOR : *DEVP1120018A*

La ministre de l'écologie, du développement durable, des transports et du logement,

Vu le code de l'environnement, notamment le titre Ier de son livre V ;

Vu l'avis des organisations professionnelles concernées ;

Vu l'avis du Conseil supérieur de la prévention des risques technologiques en date du 22 mars 2011,

Arrête :

Art. 1er. – Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R. 553-6 du code de l'environnement comprennent :

1. Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».

2. L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :

– sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;

– sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;

– sur une profondeur minimale de 1 mètre dans les autres cas.

3. La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.

Les déchets de démolition et de démantèlement sont valorisés ou éliminés dans les filières dûment autorisées à cet effet.

Art. 2. – Le montant des garanties financières mentionnées aux articles R. 553-1 à R. 553-4 du code de l'environnement est déterminé par application de la formule mentionnée en annexe I au présent arrêté.

Art. 3. – L'exploitant réactualise chaque année le montant de la garantie financière, par application de la formule mentionnée en annexe II au présent arrêté.

Art. 4. – L'arrêté préfectoral d'autorisation fixe le montant initial de la garantie financière et précise l'indice utilisé pour calculer le montant de cette garantie.

Art. 5. – Le directeur général de la prévention des risques est chargé de l'exécution du présent arrêté, qui sera publié au *Journal officiel* de la République française.

Fait le 26 août 2011.

Pour la ministre et par délégation :
Le directeur général
de la prévention des risques,
L. MICHEL

R.D
C.D
M.L.D.

V 5.84

ANNEXES

ANNEXE I

CALCUL DU MONTANT INITIAL DE LA GARANTIE FINANCIÈRE

$$M = N \times C_1$$

où

N est le nombre d'unités de production d'énergie (c'est-à-dire d'aérogénérateurs).

C_1 est le coût unitaire forfaitaire correspondant au démantèlement d'une unité, à la remise en état des terrains, à l'élimination ou à la valorisation des déchets générés. Ce coût est fixé à 50 000 euros.

ANNEXE II

FORMULE D'ACTUALISATION DES COÛTS

$$M_n = M \times \left(\frac{Index_n}{Index_0} \times \frac{1+TVA}{1+TVA_0} \right)$$

où

M_n est le montant exigible à l'année n.

M est le montant obtenu par application de la formule mentionnée à l'annexe I.

$Index_n$ est l'indice TP01 en vigueur à la date d'actualisation du montant de la garantie.

$Index_0$ est l'indice TP01 en vigueur au 1er janvier 2011.

TVA est le taux de la taxe sur la valeur ajoutée applicable aux travaux de construction à la date d'actualisation de la garantie.

TVA_0 est le taux de la taxe sur la valeur ajoutée au 1er janvier 2011, soit 19,60 %.

R.D
C.D
M.L.D.

V 5.84

Parcelle YB 25 :

ANNEXE 6 - AVIS SUR LES CONDITIONS DE REMISE EN ETAT DU SITE LORS DE L'ARRET DEFINITIF DU PARC EOLIEN

Monsieur DIDIER-NOEL Gilles né le 30/08/1931 à CHAUMONT demeurant au 14 Rue de Dijon 52 000 CHAUMONT, en sa qualité de Propriétaire.

Sur la commune de Condes (52)

Les parcelles suivantes :

Section N°	Contenance
YB 25	4ha85a89ca

Déclare accepter l'exploitation des éoliennes et équipements annexes, et donne un avis favorable aux conditions de démantèlement des éoliennes/câbles/chemins d'accès/postes de livraison, et de remise en état du site, afin que ces parcelles retrouvent leur usage agricole, selon les dispositions reprises ci-dessous :

Le démantèlement et la remise en état du site après l'arrêt définitif du projet éolien seront à la charge du maître d'ouvrage.

Selon l'article 1er de l'arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent : *« Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R553-6 du code de l'environnement comprennent :*

1- *Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».*

2- *L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :*
   - *Sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;*
   - *Sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;*
   - *Sur une profondeur minimale de 1 mètre dans les autres cas.*

3- *La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état. »*

A la fin de la durée d'exploitation du parc:

GDN

Co

V 5.84

Les parties constituant l'éolienne, c'est-à-dire les pales, la nacelle et la tour seront démontées de la même façon qu'elles ont été installées. Les travaux nécessiteront l'utilisation d'une grue principale et d'une grue auxiliaire.

Dans le paragraphe 2° de l'article du 1er de l'arrêté du 26 août 2011, la profondeur minimale s'entend avant travaux de dépose (démantèlement) des Eoliennes et/ou Installations annexes, de façon à restituer l'environnement initial de la Parcelle sur les plans agricole et paysager. Cette opération visant au rétablissement de l'activité agricole ou forestière consistera en un apport de terre végétale non mélangée permettant d'atteindre un niveau de sol au moins égal à celui existant sur le reste de la Parcelle.

En ce qui concerne la remise en état des chemins d'accès créés lors de la phase de construction, ils seront restitués à l'état initial ou conservés par le propriétaire si celui-ci le souhaite, afin que la parcelle en question puisse être de nouveau exploitée dans sa totalité : le substrat calcaire (couche supérieure des chemins) sera enlevé et réutilisé pour d'autres chemins ; la couche inférieure, s'étant tassée au fil des années, sera broyée afin de la rendre propre à l'exploitation ; et de la terre végétale sera ensuite déposée au-dessus.

Fait à Chaumont le 06/12/2018

Signatures

DIDIER-NOEL Gilles

GDN

Co

V 5.84

COPIE DE L'ARRÊTÉ DU 26 AOÛT 2011 RELATIF À LA REMISE EN ÉTAT

Décrets, arrêtés, circulaires

TEXTES GÉNÉRAUX

MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE, DES TRANSPORTS ET DU LOGEMENT

Arrêté du 26 août 2011 relatif à la remise en état et à la constitution des garanties financières pour les installations de production d'électricité utilisant l'énergie mécanique du vent

NOR : *DEVP1120018A*

La ministre de l'écologie, du développement durable, des transports et du logement,

Vu le code de l'environnement, notamment le titre Ier de son livre V ;

Vu l'avis des organisations professionnelles concernées ;

Vu l'avis du Conseil supérieur de la prévention des risques technologiques en date du 22 mars 2011,

Arrête :

Art. 1er. – Les opérations de démantèlement et de remise en état des installations de production d'électricité utilisant l'énergie mécanique du vent prévues à l'article R. 553-6 du code de l'environnement comprennent :

1. Le démantèlement des installations de production d'électricité, y compris le « système de raccordement au réseau ».

2. L'excavation des fondations et le remplacement par des terres de caractéristiques comparables aux terres en place à proximité de l'installation :

– sur une profondeur minimale de 30 centimètres lorsque les terrains ne sont pas utilisés pour un usage agricole au titre du document d'urbanisme opposable et que la présence de roche massive ne permet pas une excavation plus importante ;

– sur une profondeur minimale de 2 mètres dans les terrains à usage forestier au titre du document d'urbanisme opposable ;

– sur une profondeur minimale de 1 mètre dans les autres cas.

3. La remise en état qui consiste en le décaissement des aires de grutage et des chemins d'accès sur une profondeur de 40 centimètres et le remplacement par des terres de caractéristiques comparables aux terres à proximité de l'installation, sauf si le propriétaire du terrain sur lequel est sise l'installation souhaite leur maintien en l'état.

Les déchets de démolition et de démantèlement sont valorisés ou éliminés dans les filières dûment autorisées à cet effet.

Art. 2. – Le montant des garanties financières mentionnées aux articles R. 553-1 à R. 553-4 du code de l'environnement est déterminé par application de la formule mentionnée en annexe I au présent arrêté.

Art. 3. – L'exploitant réactualise chaque année le montant de la garantie financière, par application de la formule mentionnée en annexe II au présent arrêté.

Art. 4. – L'arrêté préfectoral d'autorisation fixe le montant initial de la garantie financière et précise l'indice utilisé pour calculer le montant de cette garantie.

Art. 5. – Le directeur général de la prévention des risques est chargé de l'exécution du présent arrêté, qui sera publié au *Journal officiel* de la République française.

Fait le 26 août 2011.

Pour la ministre et par délégation :
Le directeur général
de la prévention des risques,
L. MICHEL

GDN

Co

V 5.84

ANNEXES

ANNEXE I

CALCUL DU MONTANT INITIAL DE LA GARANTIE FINANCIÈRE

$$M = N \times C_u$$

où

N est le nombre d'unités de production d'énergie (c'est-à-dire d'aérogénérateurs).

C_u est le coût unitaire forfaitaire correspondant au démantèlement d'une unité, à la remise en état des terrains, à l'élimination ou à la valorisation des déchets générés. Ce coût est fixé à 50 000 euros.

ANNEXE II

FORMULE D'ACTUALISATION DES COÛTS

$$M_n = M \times \left(\frac{Index_n}{Index_0} \times \frac{1+TVA}{1+TVA_0} \right)$$

où

M_n est le montant exigible à l'année n.

M est le montant obtenu par application de la formule mentionnée à l'annexe I.

$Index_n$ est l'indice TP01 en vigueur à la date d'actualisation du montant de la garantie.

$Index_0$ est l'indice TP01 en vigueur au 1er janvier 2011.

TVA est le taux de la taxe sur la valeur ajoutée applicable aux travaux de construction à la date d'actualisation de la garantie.

TVA_0 est le taux de la taxe sur la valeur ajoutée au 1er janvier 2011, soit 19,60 %.

Co

GDN

V 5.84

10.14.Annexe 14 : Demande de dérogation d'échelle

PE des Lavières
188 Rue Maurice Béjart – CS 57392
34184 MONTPELLIER
Tel : 04 67 40 74 00
Fax : 04 67 40 74 05

Préfecture de La Haute-Marne
89 Rue de la Victoire de la Marne
52011 CHAUMONT Cedex

Fait le 23/11/2021, à Boulogne-Billancourt

Objet : Demande d'Autorisation Environnementale Unique d'un parc éolien sur la commune de Condes, par la société PE des LAVIERES (VALECO).

Monsieur le Préfet,

En application des dispositions de l'ordonnance n°2017-80 du 26 janvier 2017 et des décrets n°2017-81 du 26 janvier 2017 et n°2017-82 du 26 janvier 2017 relatifs à l'autorisation environnementale et conformément aux dispositions des articles R181-12 à R181-15 du code de l'environnement,

Je soussigné, M. Sébastien APPY, de nationalité Française, agissant en tant que Gérant de la SAS PE des Lavières, dont le siège social est 188 Rue Maurice Béjart – CS 57 392 - 34184 MONTPELLIER, ai l'honneur de solliciter :

La demande d'Autorisation Environnementale Unique pour un parc éolien.

- Département : 52
- Commune : CONDES

La présente demande vise la création d'un parc éolien constitué de 3 aérogénérateurs, de puissance unitaire maximale de 4,2 MW, et d'un poste de coupure sur la commune de CONDES.

Il s'agira de l'implantation d'éoliennes dont la hauteur maximale de mat est de 120 m et dont le diamètre maximal du rotor est de 141 m. Le Parc éolien des Lavières regroupe 3 éoliennes pour une puissance maximale totale installée de 12,6 MW.

Conformément à la loi du 12 juillet 2010 portant engagement national pour l'environnement et au décret n°2011-984 du 23 août 2011 modifiant la nomenclature des ICPE, cette demande s'inscrit dans la nomenclature ICPE sous la rubrique suivante :

Rubrique ICPE	Désignation de la rubrique	Volume activité	Régime
2980	Installation terrestre de production d'électricité à partir de l'énergie mécanique du vent et regroupant un ou plusieurs aérogénérateurs dont le mât a une hauteur supérieure ou égale à 50 m	3 aérogénérateurs dont la hauteur maximale de mât est de 120m	AUTORISATION Rayon d'affichage 6 km

Par la présente, la SAS PE des LAVIERES s'engage à respecter les engagements formulés dans le dossier ci-joint.

Par ailleurs, il est demandé une dérogation pour le plan du parc éolien visé à l'article D181-15-2 alinéa I-9 du Code de l'Environnement. Pour une meilleure lisibilité et compréhension des plans, une échelle de 1/1500 pour les plans d'ensemble ainsi qu'une échelle au 1/2500 pour les plans de masse sont demandées au lieu de l'échelle au 1/200.

Vous souhaitant bonne réception, nous vous prions de croire, Monsieur le Préfet, en l'assurance de nos respectueuses considérations.

Sébastien APPY
Gérant
Audry BEAUVISAGE
Pour le gérant, par délégation de signature

Contact :
Lucas GAILLARD
Chef de projets
07.86.55.39.11
lucasgaillard@groupevaleco.com

PE DES LAVIERES
188 rue Maurice BEJART - 34080 MONTPELLIER – France
Tél. 04 67 40 74 00 – Fax 04 67 40 74 05 – www.groupevaleco.com
SAS au capital de 500 €- Siret n° 883 462 558 00015– R.C.S. MONTPELLIER

10.15.Annexe 15 : Délibération d'entrée au capital de la société PE DES LAVIERES de la commune de Condes

DEPARTEMENT DE LA HAUTE MARNE

COMMUNE DE CONDES

Date de convocation

22 Septembre 2021

Date d'affichage

1er Octobre 2021

NOMBRE DE CONSEILLERS

En exercice : 10

Présents : 8

Votants : 8

REF : 14/2021

Objet :

DELIBERATION CONCERNANT LA PARTICIPATION MINORITAIRE AU CAPITAL DE LA SOCIETE PE DES LAVIERES

Le Maire certifie que la présente Délibération a été déposée en Préfecture de Chaumont au Titre du contrôle de la légalité Et qu'elle a été notifiée aux Intéressés

JOEL CLEMENT

EXTRAIT DU REGISTRE DES DELIBERATIONS DU CONSEIL MUNICIPAL
CONDES

L'an deux -mil-vingt-et-un
Le 28 septembre à 19h45, le Conseil Municipal légalement convoqué s'est réuni à la Salle des fêtes sous la présidence de *Monsieur Joël CLÉMENT*

Etaient présents : Mme et Mrs les conseillers municipaux :
Agnès TAILLANDIER, Nathalie LUGNIER, Joël CLÉMENT, Yves DELAGE, Jérôme JACQUOT, François BOUCHOT, Joël FRANZ, Jonathan MARIOT

Membre excusé : Jean-Michel NOCLERCQ

Membre Absent : Jean-Paul LESEUR

Monsieur Yves DELAGE a été élu secrétaire.

L'affaire soumise à la présente délibération concernant l'entrée au capital de la collectivité à une société exploitant une installation mentionnée à l'article L. 511-1 du code de l'environnement, une note explicative de synthèse a été adressée à tous les membres du conseil municipal conformément aux exigences de l'article L2121-12 du code général des collectivités territoriales.

La Société PE DES LAVIERES envisage la construction et l'exploitation d'un PARC EOLIEN aux lieux-dits La Femme Morte et le Poirier aux Anes, sur la Commune de Condes, Département de la Haute-Marne (52)

Les études de faisabilité portées aboutissent à une présentation auprès du Conseil Municipal. A cette occasion, la Société PE DES LAVIERES confirme la possibilité de porter un tel projet sur le territoire envisagé.
Afin d'intégrer davantage le territoire dans le projet et de maximiser les retombées économiques locales, il a été proposé d'ouvrir l'actionnariat dans la société portant le projet de PARC EOLIEN à la collectivité.

Joel CLEMENT
2021.09.30 08:25:19 +0200
Ref:20210930_082201_1-0
Signature numérique
le Maire

Le Conseil Municipal est sollicitée en ce sens.

Le Conseil,

Vu, la loi n°2015-992 du 17 août 2015 dite « Loi TECV » ;
Vu, la loi n°2019-1147 du 8 novembre 2019 relative à l'énergie et au climat ;

Copie pour impression
Réception au contrôle de légalité le 30/09/2021 à 08h36
Référence de l'AR : 052-215201013-20210928-142021-DE
Affiché le 01/10/2021 - Certifié exécutoire le 30/09/2021

Vu, les articles L2224-32 et L2253-1 du Code général des collectivités locales ;
VU la Note de synthèse ;

VU la présentation du projet et de l'opération aux membres du Conseil municipal à qui il a été rappelé :

1. Le contexte :

Profil de la Société VALECO :
- Groupe français avec 20 ans d'expérience dans les énergies renouvelables, rattaché au groupe allemand EnBW, producteur, distributeur et fournisseur européen d'électricité ;
- Présent sur toute la chaîne d'un projet : développement, construction, exploitation, avec engagement de démantèlement de ses centrales en fin de cycle.

Une offre de partenariat annexée à la note explicative de synthèse présente les conditions

2. Les bases juridiques :

L'article L 2253-1 du code général des collectivités territoriales (CGCT), tel que modifié par la loi n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte (TECV), autorise désormais les collectivités à participer au capital d'une société anonyme (SA) ou d'une société par actions simplifiée (SAS) dont l'objet social est la production d'EnR par des installations situées sur leur territoire ou sur des territoires situés à proximité et participant à l'approvisionnement énergétique de leur territoire. Aucun seuil de détention de parts n'est nécessaire. Cependant, il est préconisé de se limiter à une participation minoritaire pour éviter de rentrer dans le champ juridique des entreprises publiques.

Considérant la compétence de la collectivité ;

Considérant l'objet social de la société comme étant la production d'énergies renouvelables

Considérant le profil de la Société VALECO et sa capacité à mener à bien ces projets ;

Considérant les engagements pris par la Société VALECO auprès du Conseil Municipal, le Maire expose ce projet global à son Conseil Municipal le 28 septembre ;

Considérant les retombées économiques locales ;

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Monsieur le Maire invite ensuite le Conseil Municipal à se prononcer.

Après avoir entendu l'exposé de Monsieur le Maire et pris connaissance du dossier
Après en avoir délibéré
Le Conseil Municipal, par 8 voix Pour, 0 voix Contre et 0 Abstention

DÉLIBÈRE

1° - Approuve :

a) Le principe d'entrer au capital de la société PE DES LAVIERES à hauteur de 5% du capital soit 25,00€
b) Les statuts, le pacte d'actionnaires et l'acte de cession rédigés sur la base des principes mentionnés dans la note explicative de synthèse
c) L'acte de cession de titres

2° - Autorise Monsieur le Maire à :

a) - souscrire à la participation au capital par achats de titre à hauteur de 5% du capital soit 25,00€ et régler les droits d'enregistrements au trésor public, soit 25,00€

b) – signer l'acte de cession et le pacte d'actionnaires

3° - Désigne Monsieur le Maire pour représenter la collectivité, pour la durée du mandat en cours.

4° - Le montant à payer sera imputé sur les crédits inscrits au budget principal - exercice 2022. -

5° - Les recettes correspondant aux revenus en tant qu'actionnaire seront affectées au chapitre budgétaire 76. (Produits financiers) compte 761

Il est ici rappelé que Monsieur CLEMENT, en sa qualité de Maire ne pourra valablement engager la commune de CONDES qu'une fois que la présente délibération sera devenue exécutoire, après dépôt en Préfecture.

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10.16.Annexe 16 : Prescription du Plan Local d'Urbanisme intercommunal ayant valeur de Programme Local de l'Habitat

AGGLOMERATION DE CHAUMONT

N° 2018/112

EXTRAIT DU REGISTRE DES DELIBERATIONS

DE L'AGGLOMERATION DE CHAUMONT

Conseil communautaire du 7 juin 2018

Objet : Prescription du Plan Local d'Urbanisme intercommunal ayant valeur de Programme Local de l'Habitat

Le sept juin deux mille dix huit, à 19h30, les membres du Conseil d'Agglomération, régulièrement convoqués le premier juin deux mille dix huit, se sont réunis, au centre socio culturel de Froncles, sous la présidence de Madame Christine GUILLEMY, Présidente.

Monsieur Paul FOURNIE, Conseiller communautaire, prend place en qualité de secrétaire.

Membres du Conseil d'Agglomération : 103
Membres du Conseil d'Agglomération en exercice : 103

PRESENTS : 62
Laurence AÏDAN, Michel ANDRE, Pascal BABOUOT, Jean-Louis BENOIT, Philippe BERTRAND, Olivier BILLIARD, Gérard BOCQUILLON, Jacky BOICHOT, Joël CLEMENT, Johann CLERC, Didier COGNON, Karine COLOMBO, Dominique COMBRAY, Patricia CUCCHI, Pierre DELAITRE, Jean-Pierre DERREZ, Christian DESPREZ, Marie-Thérèse DORE, Michel DRIOUT, Stéphan EMERAUX, Pierre ETIENNE, Isabelle FENAUX, Paul FOURNIE, Gilbert GEORGEMEL, Claude GEORGES, Jacky GILLET, Gérard GROSLAMBERT, Christine GUILLEMY, Christophe GUYOT, François GUYOT, Hélène HALTZ, Marie-Noëlle HUBERT, Jean-Michel KONARSKI, Arnaud LAMOTTE, Michèle LEMAIRE, Philippe LESEUR, Patrice LOGEROT, Francis MAJORKIEWIEZ, Stéphane MARTINELLI, Yolande MARTINOT, Michel MENET, Laurence MEUNIER, Cyril MOUSSU, Frédéric MUTZ, Anne-Marie NEDELEC, Jean-Michel PASQUIER, Michel PAULIN, Laurent PELLOUARD, Patrick POINSOT, Patrick PRODHON, Claude REMY, Frédéric ROUSSEL, Sylvie ROUX, Jean-Yves ROY, Catherine SFEIR, Patrick TILLAND, Bernard VIALLETEL, Patrice VOIRIN, Jean-Marie WATREMETZ, Jean-Luc RAILLARD est remplacé par Norbert AHLRICHS, Jacky RUBINI est remplacé par Arlette BAUSSMAYER, Guy URSCHEL est remplacé par Philippe HENRY

EXCUSES : 26
Damien BONHOMME, Céline BRASSEUR, Gilles CASSERT, Michel COURAGEOT, Florence DELFOUR, Michel DERAMOND, Abbès DJANTI, Delphine GAUTIER-SDIGHA, Anne-Marie GORSE, Jessica GOULIN, France GUITREAU, Christine HENRY, Béatrice JEHLE, Anne-Marie LALLEMAND, Denis MAILLOT, Daniel MICHEL, Marie-Christine MURGIDA, Valérie NEDELEC, Véronique NICKELS, Catherine PAZDZIOR, Frédéric PERRIN,

Nicolas PIERRE, Daniel RENARD, André-Xavier RESLINGER, Franck TROMPETTE, Patrick VIARD

ABSENTS : 15
Patricia ALBAR, Roger BRAUX, Axel CAUSIN, Jean-Yves CHAGNET, Fabien CONTAL, Jean-Paul DIEUDONNE, Alain DOUILLOT, Patrice HUMBLOT, Jean-François LAMONTRE, Fanny MISA, Sophie NOEL, Bernard SIMON, Marielle THIBOUT, Philip VIEL, Daniel VOILLEQUIN

PROCURATIONS : 15
Damien BONHOMME à Jean-Marie WATREMETZ, Céline BRASSEUR à Gérard GROSLAMBERT, Gilles CASSERT à Olivier BILLIARD, Michel COURAGEOT à Michel PAULIN, Anne-Marie GORSE à Patrice LOGEROT, Jessica GOULIN à Johann CLERC, France GUITREAU à Stéphane MARTINELLI, Béatrice JEHLE à Patrick PRODHON, Daniel MICHEL à Jean-Michel KONARSKI, Marie-Christine MURGIDA à Patrice VOIRIN, Véronique NICKELS à Frédéric ROUSSEL, Catherine PAZDZIOR à Gérard BOCQUILLON, Frédéric PERRIN à Jacky BOICHOT, Nicolas PIERRE à Hélène HALTZ, André-Xavier RESLINGER à Isabelle FENAUX

Rapporteur : Monsieur Jean-Yves ROY

Vu les articles L.151-1 et suivants et R.151-1 et suivants du Code de l'urbanisme, et notamment son article L.153-11 relatif aux modalités de prescription,

Vu les articles L.103-2 et suivants du Code de l'urbanisme, concernant les modalités de concertation,

Vu l'article L.153-8 du code de l'urbanisme prévoyant que le PLU intercommunal doit être élaboré en collaboration avec ses communes membres, une conférence intercommunale rassemblant l'ensemble des Maires des communes membres a été réunie le 29 mai 2018 afin de valider les modalités de co-construction du futur document,

Vu le code de l'urbanisme disposant dans ses articles L.151-44 et suivants que le PLU peut tenir lieu de programme local de l'habitat (PLH),

Vu le Code général des collectivités territoriales,

Vu les évolutions législatives importantes intervenues, réformant considérablement les documents d'urbanisme afin qu'ils puissent contribuer à la réalisation d'objectifs transversaux et de développement durable et notamment les lois :

- Solidarité et Renouvellement Urbain du 13 décembre 2000,
- Urbanisme et Habitat du 2 juillet 2003,
- Engagement National pour le Logement du 13 juillet 2006 exprimant une volonté de rénovation du cadre juridique des politiques d'aménagement de l'espace,
- Grenelle I et Grenelle II instaurant les notions liées à la préservation des continuités écologiques (trame verte et bleue) et de maîtrise de consommation des espaces, ainsi que les premières dynamiques de plans locaux d'urbanisme intercommunaux,
- Pour l'Accès au Logement et un Urbanisme Rénové du 24 mars 2014 renforçant l'approche intercommunale dans les procédures

d'élaboration des documents d'urbanisme, ainsi que les objectifs de gestion économe des espaces, de densification de l'urbanisation, et de prise en compte de la qualité paysagère dans les projets d'aménagement,

Vu les statuts modifiés par arrêté préfectoral du 7 Novembre 2016, rendant la communauté d'agglomération de Chaumont compétente en matière de documents d'urbanisme,

Afin de lancer de façon effective l'élaboration du Plan Local d'Urbanisme intercommunal ayant valeur de Programme Local de l'Habitat, le Conseil communautaire doit délibérer afin de prescrire le PLU(i)H, définir les objectifs retenus, les modalités de co-construction dudit document avec ses communes membres et fixer les modalités de concertation.

Contexte et objectifs poursuivis

Notre territoire composé de soixante-trois communes est actuellement couvert de manière partielle par des documents d'urbanisme. Vingt-cinq documents communaux sont opposables et en vigueur, un Plan Local d'Urbanisme intercommunal sectoriel est en cours d'élaboration sur le territoire de l'ancienne intercommunalité du bassin de Bologne, Vignory et Froncles, et des Plans d'Occupation des Sols subsistent et sont frappés de caducité effective ou programmée pour cause d'évolution réglementaire, rendant le règlement national d'urbanisme de nouveau applicable dans quelques-unes de nos communes membres.

La politique de l'habitat, compétence obligatoire de notre EPCI, a été précédemment prise en charge par l'ancienne agglomération de Chaumont (25 communes) par une démarche d'élaboration d'un Programme Local de l'Habitat, lancée en 2014, arrêtée par délibération en date du 13 décembre 2016.

Ce document n'ayant pu être présenté en comité régional de l'habitat et de l'hébergement (CRHH) et approuvé avant le 1er janvier 2017, date de la fusion des 3 EPCI, il ne présente pas de caractère règlementaire.

Enfin, le syndicat mixte du Pays de Chaumont a quant à lui engagé depuis 2017 une démarche d'élaboration d'un Schéma de Cohérence Territoriale, document de normatif de rang supérieur qui imposera dès son approbation, la mise en compatibilité des documents de planification en vigueur sur notre territoire.

Conduire une procédure d'élaboration d'un Plan Local d'Urbanisme intercommunal valant Programme Local de l'Habitat permettrait une meilleure articulation des politiques sectorielles communautaires ainsi qu'une mise en compatibilité de fait avec le document de rang supérieur, par une prise en compte en temps réel des orientations inscrites dans le SCoT.

La mise en place du PLU(i)h permettra de disposer d'un document d'urbanisme en adéquation avec les réalités sociodémographiques, économiques et environnementales actuelles de notre territoire. Il définira les grandes orientations de l'action publique pour répondre collectivement aux besoins de nos administrés et mettre en œuvre un projet de territoire commun fondé notamment :

- **Sur les préoccupations d'aménagement de l'espace** en travaillant à la bonne hiérarchie des territoires, au maintien du dynamisme des centralités et notamment celle de la ville centre afin de lui

permettre de continuer d'assurer son rôle structurant à l'échelle de son bassin de vie,

- **Sur la mise en œuvre d'une politique communautaire de l'habitat** visant à garantir les parcours résidentiels des habitants au sein de notre agglomération au travers de typologies adaptées aux évolutions sociétales,

- **Sur le développement économique de notre territoire** par la qualification et/ou la requalification des espaces dédiées à l'accueil, au développement et au maintien des activités économiques, commerciales, touristiques tout en s'attachant à la préservation des activités agricoles,

- **Sur la préservation de notre environnement** pour veiller à une consommation de l'espace cohérente avec les besoins et agir pour protéger et valoriser le patrimoine naturel, architectural et urbain,

- **Sur la promotion d'une mobilité durable** dans une logique d'optimisation du réseau viaire et des transports collectifs et du développement de toutes nouvelles formes de déplacement,

- **Sur le maintien et le développement des équipements** afin de répondre aux besoins de nos habitants par une offre équilibrée de services dans les domaines de l'éducation, de la culture, du sport, de la santé ou encore du numérique.

L'élaboration du document et sa démarche de co-construction

Au-delà des obligations réglementaires identifiées par l'article L.153-8 du code de l'urbanisme, l'agglomération s'engage à respecter les grands principes de collaboration suivants :

- Assurer un travail de co-construction du PLU(i)H entre l'Agglomération et ses communes membres,
- Organiser des réunions régulières associant les élus communautaires et les élus communaux ainsi que leurs services respectifs,
- Informer régulièrement les communes de l'avancée des travaux du PLU(i)H,
- Prendre en considération les propositions émises par les communes,
- Veiller au respect des spécificités des territoires.

Ainsi, indépendamment des instances juridiques incontournables associées à cette démarche d'élaboration que seront :

- Celle de validation avec voix délibérative, soit le conseil communautaire composé des élus communautaires,
- Celle d'information, de consultation et d'arbitrage stratégique, soit la conférence intercommunale des maires, composée des maires de l'ensemble des communes membres,

Afin que les communes collaborent activement à l'élaboration du PLU(i)H, les instances d'accompagnement suivantes vous sont proposées :

- Création d'un comité de pilotage : identifié comme l'instance qui propose à la validation les orientations de la démarche d'élaboration du PLU(i)H et assure la cohérence du projet, elle se compose du bureau communautaire, élargi ponctuellement aux référents experts et aux partenaires institutionnels incontournables d'une telle démarche (exemple DDT52). Présidé par la Présidente de l'Agglomération, ses principales missions seront :

  - De définir les grandes orientations de la démarche, et soumettre à la validation du conseil communautaire les grandes étapes d'élaboration du PLU(i)H après arbitrage de la conférence intercommunale des maires,
  - D'être l'instance d'échange avec les Personnes Publiques Associées, et avec les maires des communes membres par la tenue aux étapes clés des conférences intercommunales des maires,
  - D'étudier les demandes particulières exprimées par les communes, tels que les besoins de procédures d'évolution des documents d'urbanisme communaux qu'il serait nécessaire d'engager dans l'attente de l'approbation du PLU(i)H.

- Création d'un comité technique : identifié comme instance de travail et de suivi opérationnel dans la démarche d'élaboration du PLU(i)H, elle se compose des membres des commissions communautaires « aménagement du territoire, urbanisme » et « politique de la ville, habitat, aire d'accueil des gens du voyage ». Présidé par le Vice-Président en charge de l'aménagement du territoire et de l'urbanisme, ses principales missions seront :

  - D'assurer le suivi opérationnel de la procédure, soit les études d'élaboration, la mise en œuvre de la procédure administrative, de la concertation avec les acteurs de la démarche…
  - D'assurer la collaboration avec les communes membres au travers de la mise en place d'ateliers ou de réunions de travail thématiques ou sectoriels en tant que de besoin, et ouverts aux représentants des communes et conseillers municipaux,
  - D'associer en tant que besoin les différents partenaires et personnes qualifiées qui pourraient intervenir au gré des thématiques abordées,
  - De préparer les éléments présentés au comité de pilotage en assurant la synthèse des travaux menés dans les différents groupes de travail,
  - De présider à l'animation de la démarche en pilotant le travail du bureau d'études ainsi que la coordination des services communautaires supports.

La concertation publique

Cette démarche ne peut se concevoir sans une participation active de l'ensemble des acteurs du territoire. Si le code de l'urbanisme fixe les conditions d'associations des personnes publiques et notamment de l'État, l'agglomération s'attachera à ce que le PLU(i)H soit également élaboré de façon conjointe avec le monde professionnel, les associations, les structures représentatives de la société civile ainsi que les habitants du territoire.

Pour assurer l'association du plus grand nombre, il vous est proposé la mise en œuvre des actions suivantes :

- La mise à disposition des associations locales, des habitants et des autres personnes concernées, dans les locaux de l'agglomération, des éléments rédactionnels et graphiques du dossier d'élaboration dont le triple objectif sera d'informer de l'état d'avancement de la démarche, de porter à connaissance les orientations retenues et de recueillir les éventuelles observations,
- La communication régulière dans les médias locaux permettant de mettre en avant les avancées de la procédure,
- La création et la mise à jour régulière d'un espace internet dédié sur le site de l'agglomération,
- L'organisation de réunions publiques d'information pour présentation du projet jusqu'à la démarche d'arrêt du PLU(i)H.

Vu l'avis favorable de la Commission « Aménagement de l'espace, Urbanisme » en date du 09 avril 2018,

Vu l'avis favorable de la Commission « Finances » en date du 30 mai 2018,

Après en avoir délibéré, le conseil communautaire décide à l'unanimité :

* de prescrire l'élaboration du Plan Local d'Urbanisme intercommunal tenant lieu de programme local de l'Habitat sur l'intégralité du territoire de la Communauté de l'Agglomération de Chaumont,
* d'arrêter les modalités de collaboration entre l'agglomération et les communes membres, telles que précisées dans le corps de la délibération,
* de fixer les modalités de la concertation pendant l'élaboration du projet de plan, tel que décrites dans le corps de la délibération,
* d'inscrire en section investissement des budgets des années 2018 et suivantes, les dépenses à engager pour la mise en œuvre de cette procédure,
* d'autoriser madame la Présidente à demander toute subvention pouvant être versée par tout organisme intéressé et à solliciter l'État au travers notamment de la Dotation Générale de Décentralisation,

* d'autoriser madame la Présidente à prendre toutes les mesures nécessaires à l'exécution de la présente délibération.

Conformément aux dispositions des articles L.132-7 et suivants et L.153-16 du Code de l'urbanisme, la présente délibération sera notifiée aux personnes publiques associées suivantes :

- Madame le Préfet,
- Monsieur le Président du Conseil Régional,
- Monsieur le Président du Conseil départemental,
- Messieurs les Présidents des chambres consulaires, de commerce et d'industrie, des métiers et de l'artisanat et de l'agriculture,
- Monsieur le Président du Syndicat Mixte du Pays de Chaumont en charge de l'élaboration du Schéma de Cohérence Territoriale.

La présente délibération sera également transmise pour information aux personnes publiques suivantes, pour leur permettre d'être consultées à leur demande dans le cadre de cette démarche d'élaboration, à savoir :

- Les Présidents des EPCI limitrophes compétents,
- Les Maires des communes limitrophes,
- les représentants des organismes mentionnés à l'art. L.411-2 du Code de la construction et de l'habitation, propriétaires ou gestionnaires de logements situés sur le territoire de notre agglomération,
- Les associations locales d'usagers agréées dans des conditions définies par décret en Conseil d'Etat,
- 2° Les associations de protection de l'environnement agréées mentionnées à l'article L.141-1 du code de l'environnement.

Conformément aux mesures de publicité et d'affichage prévues aux articles R.153-20 et R.153-21 du Code de l'urbanisme, il sera fait :

- mention de l'objet de la présente délibération dans un journal diffusé dans le Département,
- affichage de la présente délibération durant un mois au siège de l'agglomération et en mairie de chaque commune membre.
- publication de la présente délibération au recueil des actes administratifs de l'agglomération.

Pour extrait conforme,

le Président

Christine GUILLEMY

Ce document a été signé électroniquement..
sous sa forme originale le 14/06/2018 à 16:36:15
Référence : b13700768e771abff9bf4ae9bd615cf56e8ef3c2

Certifie sous sa responsabilité le caractère exécutoire de la présente délibération.

Réception au contrôle de légalité le 14/06/2018 à 16:46:02
Référence technique : 052-200068658-20180607-A_D_2018_112-DE
Affiché le 15/06/2018 - Certifié exécutoire le 15/06/2018