Business report

General conditions

Macroeconomic trends

Economies

The global economy was impacted to a large extent in 2020 by the effects of the coronavirus pandemic. All of the economies relevant to us experienced a sharp drop in economic performance. This was accompanied by political uncertainties, for example, due to the United Kingdom exiting the European Union.

Development of gross domestic product (GDP)

in %	2021	2020	2019[1]
World	5.5	-3.5	2.8
Eurozone	4.2	-7.2	1.3
Germany	3.5	-5.4	0.6
France	5.5	-9.0	1.5
Sweden	3.5	-4.7	1.3
Switzerland	3.6	-5.3	1.2
Czech Republic	5.1	-6.5	2.3
Turkey	5.0	-5.0	0.9

1 The figures for the previous year have been restated.

As the further development of the coronavirus pandemic remains unpredictable, any statements relating to the economic trends in 2021 are subject to considerable uncertainty. In general, economic activity is expected to recover strongly in reaction to the economic downturn in 2020. However, economic performance will at best reach levels seen in 2019. The macroeconomic trends are not expected on balance to have either a particularly positive or negative influence on our business performance in 2021.

Development of interest rates

The central banks have helped to counteract the effects of the coronavirus pandemic with their very expansive monetary policies. In the first quarter of 2020, the yields in the EU periphery countries initially rose, although the recovery package made available by the EU led to falling interest rates during the remainder of the year. German government bonds traded at negative yields and the high demand for good credit ratings led to a further fall in yields from ten-year bonds during the year.

The discount rates applied to company pension provisions and nuclear provisions fell slightly again in 2020 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

Established competitors

National and international
ALPIQ, EDF, EDPR, Enel, Engie, E.ON, Equinor, EVN, Fortum, Iberdrola, Ørsted, RWE, Vattenfall, Verbund

Regional
Badenova, Entega, EWE, Mainova, MVV, N-Ergie, SWM, Thüga

New competitors

Commodity suppliers/solution suppliers/start-ups
bliss.energy, Lichtblick, NEXT Kraftwerke, Sonnen, stromio, Thermondo

Renewable energies
BayWa r.e., Encavis, ENERTRAG, PNE Wind, theolia, wpd

E-mobility, telecommunications and broadband
1&1, Allego, Deutsche Glasfaser, Deutsche Telekom, Ecotel, Fastned, Google, Ionity, Shell, Tesla, VW

Financial investors
Capital Stage, KGAL, Talanx

EnBW position:
- Further development from an integrated energy supplier to a sustainable and innovative infrastructure partner
- Focus on growth in renewable energies, grids and customer solutions (especially e-mobility, telecommunications and broadband)
- Active in Germany and selected foreign markets

Challenges:
- Increasing competition due to entry of new market participants in the core business
- New competition due to market entry of EnBW in new business fields
- Optimal positioning with respect to the regulatory environment and highly competitive market

The energy sector is currently experiencing a period of great upheaval. There is particular pressure for change due to the Energiewende. However, digitalization, sector coupling (Glossary, from p. 138) and the desire of local authorities to become self-sufficient are also having a strong influence on the sector.

A significant factor is that the energy sector is highly regulated, which means that political policies strongly influence developments in the sector. 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

Although the coronavirus pandemic has clearly dominated the political agenda in the last few months, the issue of climate protection has continued to receive a lot of attention. In part, the emergency aid programs and stimulus measures to combat the threat of an economic crisis were linked at a European and national level with the goal of supporting investment in the green transformation of the economy and of accelerating structural change. Due to the significantly more ambitious targets at a European level in the EU Green Deal (Glossary, from p. 138), there has been increasing pressure at a national level to accelerate the expansion of renewable energies, the transport transition and the heating transition in the building sector and introduce new measures and instruments. Although the national climate protection targets for 2020 were narrowly achieved due to the impact of the coronavirus pandemic, there is already a significant gap that must be bridged to achieve the current emissions reduction target of –55% by 2030. EnBW is campaigning for a significant acceleration in the expansion of renewable energies and for the elimination of existing hurdles within the approval processes and those that restrict the availability of sites. Without sweeping changes to the legal framework, the aim of increasing the share of gross energy consumption accounted for by renewable energies to 65% by 2030 will not be achievable. To improve the market perspectives for renewable energies in all sectors, we are continuing to advocate the introduction of a minimum CO_2 price across all sectors and a climate-based reform of the tax, duty and levy systems so that climate-friendly electricity applications become more competitive against fossil fuels.

EU Green Deal

The EU Green Deal (Glossary from p. 138) presented by the EU Commission together with the stricter emissions reduction target of at least –55% by 2030 and the target of climate neutrality across the continent by 2050 both stipulated in the accompanying climate law has received broad support from the majority of the European Council. It is thus probable that the climate law will be passed by the end of 2021 and the associated directives and regulations will be amended and tightened accordingly next year.

In particular, the revision of the Emissions Trading Directive and Effort Sharing Regulation are of central importance for our company. Many different options for their reform, including the expansion of the emissions trading system to encompass the transport and heating sector, are currently being discussed. In addition, there are plans to reform the Renewable Energy Directive and the Energy Efficiency Directive. Preparations have also been made for revision of the financing instruments and capital market guidelines as well as measures for the decarbonization of the gas and transport sector.

We welcome the Green Deal agenda and the tightening of the European 2030 climate target to at least -55%. It is anticipated that the associated amendments to the regulations will support our own transformation agenda. We are advocating, in particular, an ambitious redesign of the emissions trading system: Clear price signals and the establishment of a minimum price for CO_2 emissions will make it easier to integrate renewable energies into the market and safeguard investment.

Coal phase-out

After the Coal Commission presented its final report in January 2019, the Coal Phase-out Act was passed in July 2020. It envisages – in accordance with the recommendations made by the Coal Commission – an end to coal-fired power generation in Germany by 2038 at the latest. German brown and hard coal capacities in the energy industry should also be reduced to 15 GW each by 2022 (the total capacity of both is currently around 42 GW). A further reduction in the total capacity to 17 GW will then be required by 2030. The law includes the negotiated decommissioning of brown coal power plants and compensation for their operators, as well as compensation in the form of auctions for operators of hard coal power plants. Participation in the auctions will be made more difficult for operators of power plants in southern Germany due to an additional factor concerning the grids because these plants are considered to be important for supporting the grids. In general, there will be no compensation for the decommissioning of power plants after 2030 (except in cases of possible hardship). Power plants that are not decommissioned via an auction can be forced to shut down as a part of "statutory reductions." In addition, incentives will be created for power plant operators to switch over their power plant sites to climate-friendly fuels (fuel switch).

Sales segment

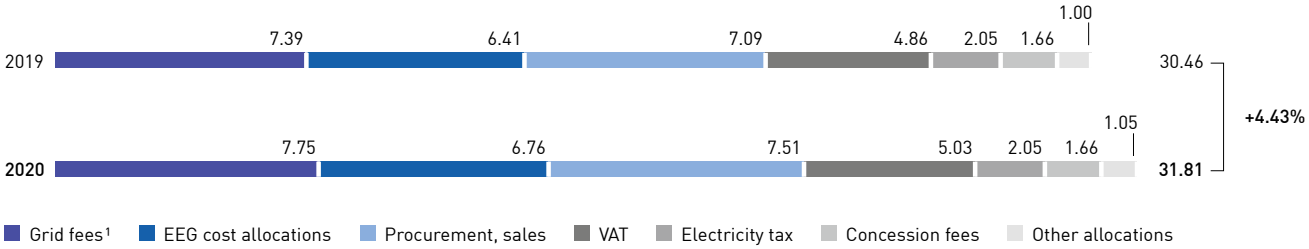
Electricity and gas prices for retail and industrial customers

According to an analysis of electricity prices by the German Association of Energy and Water Industries (BDEW) published in January 2021, the average monthly electricity bill for a household with an annual consumption of 3,500 kWh in 2020 came to €92.78 compared to €88.84 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 €97 per year on 1 April 2020. This was due to an increase in costs both for the procurement of electricity and also for cost allocations and network user charges. For industrial customers

receiving a medium-voltage supply, the average electricity price including electricity taxes fell according to calculations made by BDEW by 3.6%, from 18.43 ct/kWh in the previous year to 17.76 ct/kWh in 2020.

According to calculations by the German Federal Statistical Office, natural gas prices for private households in 2020 were 2.0% below the prices in the previous year; the price of gas for industrial customers fell by 6.7%.

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 2021

Structural changes

The coronavirus pandemic has also had an impact on **electricity sales.** Electricity consumption in Germany fell by around 3.6% in 2020. Due to the sharp increase in the number of people working from home and the fact that people have spent more time at home, it is likely that electricity consumption in private households has increased. In contrast, we believe that there will have been a decrease in the electricity consumption of commercial customers because the retail trade has been shut down for many weeks. Due to our focus on retail customers in our electricity sales, we are only impacted to a limited extent by the falling sales volumes to business and industrial customers. We automatically passed on the reduction in VAT of three percentage points – which was designed to stimulate the economy – in full to our customers. The draft law for fair consumer contracts that was already presented in 2019 is in the process of being approved. The aim of this law is to protect consumers against excessively long contractual terms.

Due to limitations on mobility in the early part of the year because of the coronavirus pandemic, there was a temporary fall in the number of charging processes at public charging points. However, the **demand for electric vehicles** increased significantly over the course of the year. This was primarily due to government incentives and the CO_2 limits imposed on the fleets of cars that are produced by car manufacturers. Demand was also supported by measures in the recovery package for purchasing electric vehicles and expanding the charging infrastructure. We anticipate that this will gradually result in greater utilization of the charging infrastructure (Glossary, from p. 138).

The coronavirus pandemic has increased awareness for the fact that the Internet provides an "insurance function" for the economy and social life. Acceptance for digitalization and its application has been boosted considerably as a result. In everyday working life, the huge number of people working from home has led to a sharp increase in video conferencing. Data transmission volumes have increased rapidly as a result. In order to be able to handle this increasing demand in Germany, the further **expansion of the "last mile" of the broadband network** (Glossary, from p. 138) is essential. In September 2020, the German government reached an agreement with the EU Commission to allow state aid for so-called "gray spots" that already have bandwidths of at least 30 Mbit/s but do not yet have gigabit connectivity. Together with our subsidiaries NetCom BW and Plusnet, we cover the entire value added chain in the broadband sector and will benefit from this accelerated expansion (p. 78).

On 17 December 2020, the draft version of the German Renewable Energies Act (EEG) 2021 was passed by the German Bundestag. In this context, improvements to the framework conditions for the **operation of storage systems and own consumption models** are important for the success of the Energiewende. The proposals in the Winter Package from the EU will significantly improve the economic framework conditions for so-called "prosumers." This is important to support the engagement and investments of customers who have already invested in technologies for the Energiewende or those who plan to do so. We are actively involved in the discussion about the design of these framework conditions.

Alongside the reform of the EEG, we are also following the consultation process for the design of an **ordinance for load management of the low-voltage grid** in accordance with section 14a Energy Industry Act (EnWG). However, the initial draft version of the Controllable Consumption Devices Act (SteuVerG) that was published on 22 December 2020 was subsequently withdrawn again on 17 January 2021 by the Federal Ministry for Economic Affairs and Energy. We fundamentally welcome more specific rules on the implementation of section 14a EnWG. The utilization of flexible consumption devices, such as electric vehicles or heat pumps, and their smooth integration into the distribution grid will make it easier for market participants to deal with the challenges posed by the transport and heating transitions. However, there are still considerable shortcomings in the proposal that is currently being discussed, such as making the proposed model suitable for the mass market. EnBW is closely following this process.

Grids segment

In January 2020, the four German transmission system operators presented the draft framework scenario for the **Network Development Plan Electricity** (Glossary, from p. 138) for the period up to 2035. All variants anticipate an increase in electricity consumption. The draft takes into account the phasing out of nuclear power by the end of 2022 and the planned phase-out of coal-fired power generation by 2038 at the latest.

The consultation process for the **Network Development Plan Gas** (Glossary, from p. 138) 2020 to 2030 was held in May 2020 on the basis of the already published draft proposals. The transmission system operators published their draft later than in previous years on 1 July. Hydrogen and the required transmission infrastructure have been taken into account as a central component of the German decarbonization strategy. The schedule for the evaluation of the request for changes by the Federal Network Agency has not yet been defined. However, it is expected that the evaluation will be carried out during the first quarter.

Approval for the construction of a direct current substation (HVDC converter) at the site of the nuclear power plant in Philippsburg, which is currently being dismantled, for the 340 km direct current transmission line between Osterath in North Rhine-Westphalia and Philippsburg that will be realized by our transmission system operator (TSO) TransnetBW together with Amprion in the **ULTRANET** project was received on 26 March 2020. The ceremony for the laying of the foundation stone was held on 16 September 2020. Construction work on ULTRANET is due to be completed by 2024. In parallel, the two transmission system operators TenneT and TransnetBW are also realizing the **SuedLink** project. It comprises two DC transmission lines more than 600 km long from Schleswig-Holstein to Bavaria and Baden-Württemberg. The Federal Network Agency opened the planning approval process for the first northern sections in February 2020. In the second half of the year, TransnetBW also submitted an application to the Federal Network Agency to open the planning approval process for some southern sections, such as in Lower Franconia. Progress is thus being made in a project that is key to the success of the Energiewende.

However, the expansion of the grids is not progressing as quickly as planned. It is therefore foreseeable that additional reserve capacity to **support the stability of the grid** will be required after the last nuclear power plants have been shut down in 2022. The TSOs TransnetBW, Amprion and TenneT have defined the capacity they each require and issued invitations to tender to construct suitable power plants within their controlled zones to cover this capacity. TransnetBW has issued an invitation to tender for a capacity of 300 MW for Baden-Württemberg. For this invitation to tender, EnBW AG had its bid proposing the power plant site in Marbach am Neckar accepted. The groundbreaking ceremony on 12 October 2020 marked the official start of the construction process.

A major field of activity for our grid subsidiaries is **digitalization.** They are engaged in a number of different projects, from the digitalization of internal work processes and new exchange platforms connecting operators of the transmission and distribution grids through to the digitalization of customer and supplier interfaces. In the DA/RE (DAta exchange/REdispatch) project, for example, TransnetBW and Netze BW are developing a digital platform solution for the deployment of decentralized power plants at a distribution grid level to stabilize the grids. To ensure we are prepared for the challenges associated with the Energiewende, we are continuing to improve the transparency and automation of the medium and low-voltage grids. This includes the introduction of smart metering systems that was started in 2020.

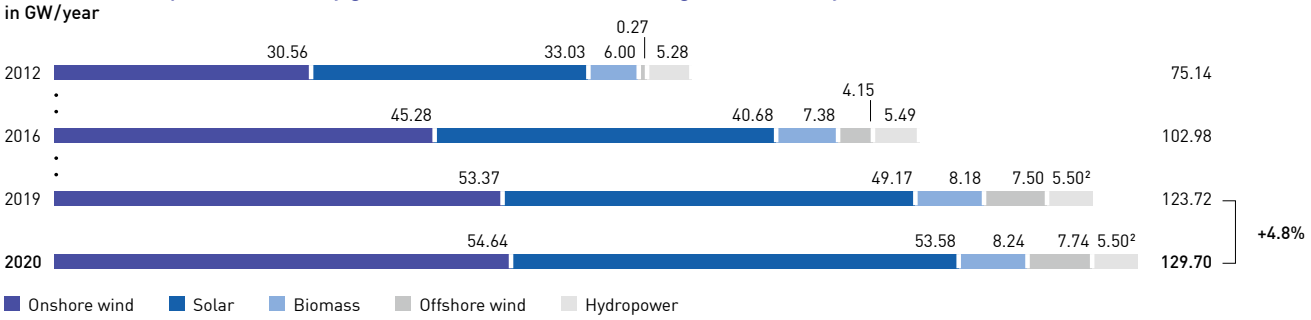
Renewable Energies segment

Germany

The **proportion of total German electricity generation accounted for by renewable energies** increased significantly to 52% in 2020, which was mainly due to favorable weather conditions and, to a lesser extent, a fall in demand due to economic conditions. This corresponds to an increase of six percentage points compared to 2019.

In 2020, the increase in **installed output of renewable energies** in Germany was lower than expected, which was primarily attributable to complex approval processes. Around 4 GW of output from new photovoltaic plants and 1 GW from new onshore wind farms was placed into operation. In the first half of 2020, a great deal of interest was shown by project developers in the auctions held for photovoltaics, while the auctions held for onshore wind power were once again clearly undersubscribed, despite a slight upwards trend in the number of bids in the second half of 2020.

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 4.80 GW to 5.50 GW by EnBW.
Source: Fraunhofer ISE (www.energy-charts.de) | As of 31/12/2020

As part of the "mini EEG reform" passed in the summer of 2020, the 52 GW ceiling for the **funding of photovoltaic power plants** with an output of less than 750 kW was removed so that power plants that are placed into operation after this ceiling has been reached can still receive funding in accordance with the EEG. For onshore wind power, a flexibility clause for the minimum distance rule of 1,000 m was introduced so that individual states could deviate from this rule. The privileges for community energy cooperatives have been removed so that they no longer have a right to participate in auctions without approval in accordance with the Federal Immission Control Act.

In November 2020, the German Bundestag passed the **Offshore Wind Energy Act,** which increases the target for offshore wind capacity from 15 GW to 20 GW for 2030 and sets a target of 40 GW for 2040.

The **EEG reform 2021** was passed at the end of 2020. It includes the target of achieving climate neutrality in Germany by 2050. In addition, the annual tender volumes for renewable energies have been increased so that the 65% target for 2030 can be achieved.

France

We 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 auction-based invitations to tender that are mainly used in France will guarantee continued and reliable support for renewable energies.

Sweden

Sweden offers very favorable 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.

Turkey

The current funding mechanism for renewable energies in Turkey is valid until the middle of 2021. The design of the new funding mechanism is still being defined. 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

The average spot market price (Glossary, from p. 138) in 2020 was around €15/MWh below the level in the previous year. The average price on the forward market (Glossary, from p. 138) was also significantly below the average price in the previous year. The fall in prices was primarily attributable to the low demand for electricity because of the restrictions placed on public life due to the coronavirus pandemic, high feed-ins from renewable energy sources and the significant drop in gas and coal prices.

Current prices on the forward market for the German market in 2022/2023 indicate that prices will increase. This reflects, above all, similar trends on the markets for coal, gas and CO_2 allowances (Glossary, from p. 138) where prices are also increasing. An important lever will also be the future development of energy and climate policies both at home and abroad.

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

in €/MWh	Average 2020	Average 2019
Spot	30.47	37.67
Rolling front year price	40.20	47.79

Gas market

The spot market price (Glossary, from p. 138) fell significantly until the middle of 2020 but recovered from August and is currently higher than at the beginning of 2020. The prices for deliveries in 2021 fell until the middle of March 2020, experienced sideways movement after that and began to rise slightly from September onwards. 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 northwest Europe, while on the other hand, above-average temperatures in large parts of Europe and Asia led to a much lower demand for heating. This effect was amplified by the extensive lockdowns in Europe.

Most market participants are once again expecting high levels of LNG deliveries to Europe in winter 2020/2021. In combination with the very well-stocked gas storage facilities in Europe, this means that many market participants do not expect any excessive increases in prices.

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

in €/MWh	Average 2020	Average 2019
Spot	9.41	13.51
Rolling front year price	13.49	18.19

Oil market

The price of Brent oil stood at US$66/bbl at the beginning of the year. Following the start of the coronavirus pandemic, the front month price initially dropped to US$48/bbl by the beginning of March 2020. An attempt to cut production by the OPEC+ group failed. Instead, an increase in oil production and the spread of the coronavirus led to a historically unprecedented collapse in global demand for oil. The Brent prices fell to US$16/bbl on 22 April 2020. It was only possible to reverse the fall in prices after an agreement by the OPEC+ group to cut back its oil production, other price-driven cuts in production outside of the OPEC+ countries and the first signs of recovery in the global

demand for oil. Front month prices experienced sideways movement as a result. There were serious concerns about the demand for oil at the end of October 2020 due to the sharp increase in the number of people infected with the coronavirus in the USA and Europe. This caused oil prices to collapse once again. It was only after Saudi Arabia and Russia signaled that they were willing to adapt oil production by the OPEC+ group to the new framework conditions that oil prices began to stabilize.

Forward market prices are reflecting the expectation that prices will increase slightly. Cuts in production by the OPEC+ group and other countries as well as a recovery in the global demand for oil are anticipated.

Development of prices on the oil markets

in US$/bbl	Average 2020	Average 2019
Crude oil (Brent) front month (daily quotes)	43.21	64.16
Crude oil (Brent), rolling front year price (daily quotes)	45.88	61.31

Coal market

The front year price for coal fell sharply until the end of April 2020. This was mainly attributable to the extremely limited demand for coal in Europe due to low gas prices (displacement of coal-fired generation with gas-fired generation) and the negative effects of the coronavirus crisis on global demand. There was a period of stabilization from the end of April until the beginning of June when the collapse of the only railway bridge to the Russian coal export port of Murmansk and rising gas prices resulted in an increase in prices. The front year price for coal experienced sideways movement in the second half of 2020. The increasing restrictions on imports to China, the negative effect on demand due to the coronavirus pandemic and European gas prices remained deciding factors. Production losses in Colombia also played a role on the supply side.

The coronavirus pandemic, European natural gas prices and demand from China – which is by far largest consumer of coal in the world – will have a decisive influence on European coal prices. European natural gas prices are significant because of the competition between both fuels in the area of electricity generation.

Development of prices on the coal markets

in US$/t	Average 2020	Average 2019
Coal – API #2 rolling front year price	57.98	69.54
Coal – API #2 spot market price	50.40	60.75

CO_2 allowances

The coronavirus crisis had its biggest impact on the development of prices for CO_2 allowances (Glossary, from p. 138) in March 2020. It led to a considerable fall in emissions due to the reduction in industrial production, lower electricity consumption and the almost complete cessation of air travel. Another reason for the fall in emissions was the significantly lower fuel switch costs due to the low price for gas. These prices were actually negative in summer 2020 – even when the price of CO_2 allowances is zero, the generation costs at gas power plants are still lower than those at coal power plants. As the coronavirus pandemic is overcome and the economy starts to recover, it is anticipated that there will again be a huge undersupply of EUA certificates (Glossary, from p. 138) from 2021. It is likely that the reduction in supply imposed by the market stability reserve (MSR) and the ambitious targets for the reduction in emissions introduced by the EU Commission will also support an increase in prices. It is thus expected that prices will increase as a result.

Development of prices for emission allowances/daily quotes

in €/t CO_2	Average 2020	Average 2019
EUA – rolling front year price	24.46	24.88
CER – rolling front year price	0.26	0.21

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).

The authorization to operate the Philippsburg nuclear power plant for the purpose of generating power expired on 31 December 2019. On 14 May 2020, we successfully and safely completed the demolition of the two cooling towers at the site. The waste storage facilities that were newly constructed on the power plant site were placed into operation on 14 April 2020 and handed over to the state-owned company responsible for the intermediate storage. On 11 December 2020, we also received approval from the Baden-Württemberg Ministry for the Environment for the commissioning of the newly constructed residual material processing center at the site in Philippsburg. The processing of material from the dismantling of the two nuclear power plants at the site can now begin.

On 28 September 2020, the federal company for radioactive waste disposal (BGE) published its report on 90 areas in Germany that have favorable geological conditions for the construction of a final storage site for nuclear waste. The aim is to select a site by 2031 and to start storing the containers holding the radioactive waste underground by 2050.