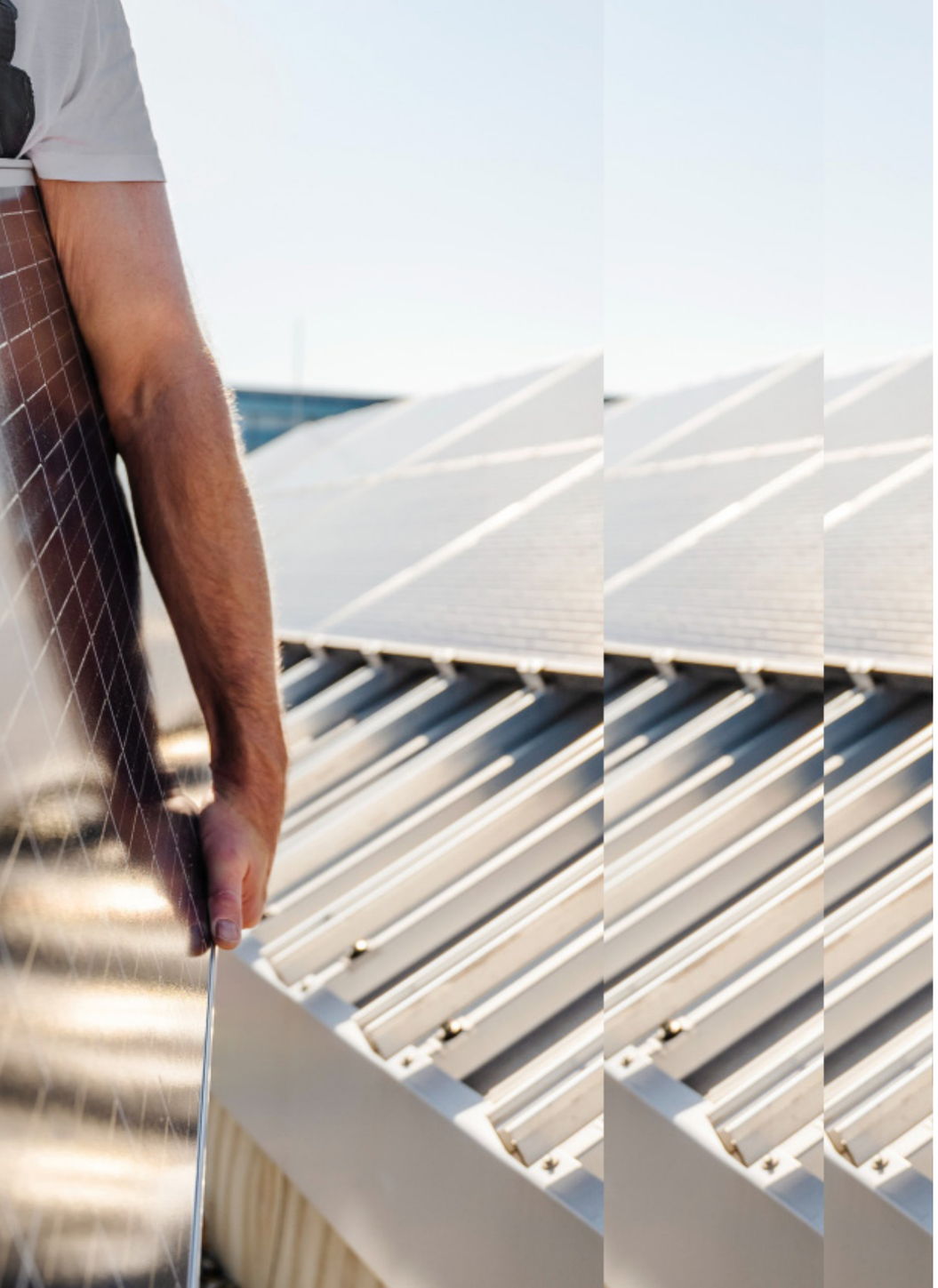

NOERR

German energy transition
Potential for investors

Briefing

September 2024

German energy transition

I. Situation under the current coalition government

Unlike the general trend in M&A, investment in the energy sector has enjoyed a permanent boom in Germany in recent years. Germany clearly remains attractive to domestic and overseas investors despite, or perhaps specifically because of, the major challenges and opportunities of the transition to green energy. But the question remains as to whether Germany as an investment destination is in a position now and in the future to achieve its ambitious self-imposed objectives, i.e. whether these energy transition objectives, some of which have been agreed under international law, can be achieved alongside the indisputably high level of investment required due to the changes already implemented by the coalition government and those planned for the future. After all, businesses or private capital have to fund 90% of the investments needed for the energy transition. The state can only put in 10% of the funding, specifically as an incentive for investors. The energy transition (in Germany) hinges on whether the regulatory measures create the right incentives for private investors.

The federal government is aiming for net zero by 2045. In recent years, it has drawn up and put in place a raft of measures to ensure (or adhere to) an exit from fossil and nuclear energy sources and to promote the expansion of renewables without jeopardising the paramount asset of security of supply. At the same time, there is much greater demand for energy due to increasing digitalisation and transition-related electrification across all industries. In light of this challenging situation and especially given the Federal Constitutional Court's ruling on the legal basis for the climate and transformation fund (BVerfG, judgment of 15 November 2023 – 2 BvF 1/22 –, BGBl I 2023, no 358), there are limited funds available via subsidies and loans to create investment incentives to achieve net zero.

The federal government and the EU Commission are thus trying, via various incentives, to further boost and also control private investment in energy infrastructure. Expanding and operating renewable energy plants is now considered a matter of overriding public interest and is increasingly being taken into account in laws and decisions on balancing interests. This will significantly shift the incentive system towards expanding renewables. As with the plans to ramp up the hydrogen economy and create a market for carbon capture, politicians are trying to drive the urgently needed expansion of the grid forward. Of equal interest to certain investors is the handling of remaining assets and infrastructure for nuclear and fossil fuels which will still run for a residual period and will have to be decommissioned or converted.

Recently, when agreeing on the federal budget for 2025, Germany's federal government expressed its wish to fundamentally change the subsidy regime for renewables. A switch from operating subsidies to investment-cost subsidies was announced in the growth initiative[1] adopted by the federal cabinet on 17 July 2024 along with the budget. The report also states that renewables subsidies are set to expire when coal-fired power generation ends. It remains to be seen whether and when these far-reaching changes to the funding structure will be implemented, especially given that the 2025 federal budget has not yet been finalised. In any case, a reliable regulatory framework would be most welcome for investors.

1 https://www.bundesregierung.de/breg-de/bundesregierung/gesetzesvorhaben/wachstumsinitiative-2306060, accessed 17 October 2024

II. Overall environment

In recent years, European and German legislators have tried to remove barriers and create incentives for investment to tackle the challenges of the energy transition. Using the Green Deal as a starting point, the coalition government has also put in place regulatory measures in the past three years aimed at speeding up the energy transition. The introduction of the Renewable Energy Directive (EU) 2023/2413 (RED III) at the European level and the amendment of the German Renewable Energy Act (*Erneuerbare-Energien-Gesetz – EEG*) have had the most far-reaching effects in recent times.

This legislation as a whole aims to reinforce the demand and selling markets for renewables and to remove regulatory barriers (red tape – duration of approval, obstacles to expansion).

1. European legislation

In 2019 and 2020, the 27 EU Member States signed the European Green Deal 2020 to achieve net zero by 2050. First, greenhouse gas emissions are to be cut by at least 55% by 2030 compared to the level in 1990. The Fit for 55 package contains a raft of proposals to revise and update EU legislation. It also contains proposals for new initiatives to ensure that EU measures are in harmony with the climate targets agreed by the Council and European Parliament.

The EU Commission has committed, for example, to mobilising sustainable investments of at least €1 trillion in the next ten years. Some 30% of the multi-year EU budget and the NextGenerationEU economic recovery package is to be set aside for green investments. The InvestEU scheme is also intended to mobilise public and private investments to achieve the climate targets. At least 30% of the investments from the InvestEU fund is to be used to reach the climate targets.

1.1. RED III

Furthermore, RED III came into force on 20 November 2023. This Directive provides for a significant and binding increase in the share of renewables within the overall energy consumption in EU Member States to 42.5% by 2030.

The Directive also focuses on introducing faster approval procedures for renewable energy plants. The Member States are required to provide simplified approval procedures for identified acceleration areas. In those areas, approval procedures for renewables projects should take no more than 12 months, and no more than two years for offshore power from renewable sources. Approvals to replace and modernise existing renewables plants (known as repowering measures) should take six months, or 12 months for offshore repowering measures.

In those areas, the environmental impact assessment and Habitats Directive impact assessment are also to be replaced by a leaner screening process. There is a presumption of suitability if the project complies with rules set at the level of area designation. Outside of the acceleration areas, the Member States are to ensure that approval procedures for renewables projects take no more than two years (or three years for offshore projects). The Directive sets a 12-month deadline for repowering measures on certain conditions (two years for offshore projects). It also provides for digitalisation and facilitation of approval procedures. For example, Member States are to set up contact points to support applicants throughout the application procedure. The Member States also have to enable approval procedures to be carried out electronically.

The Member States must implement the Directive by 21 May 2025, or by 1 July 2025 for projects outside of acceleration areas. The Directive also stipulates that Member States had to declare areas already designated as sites for the use of renewable energy as acceleration areas by 21 May 2024.

On 29 April 2024, the federal government in Germany presented a bill to transpose the EU Renewable Energy Directive in the sectors of offshore wind and electricity grids and to amend the Federal Demand Planning Act (*Bundesbedarfsplangesetz*). The bill essentially provides for the implementation of the measures outlined in RED III, in other words determining acceleration areas in urban development planning and establishing facilitations for the environmental impact assessment and species conservation law assessment. The same goes for the bill to implement RED III in onshore wind and solar power, including the related energy storage, which the federal cabinet adopted on 24 July 2024. It essentially transposes the provisions of RED III relating to onshore wind and solar power.

The directly applicable EU emergency regulation (Regulation 2022/2577) is in place until the end of the implementation period for RED III. It regulates the acceleration of expansion procedures and the waiver of an environmental impact assessment for the approval of wind turbines in priority areas.

1.2. European wind power action plan

In October 2023, the EU Commission announced the European Wind Energy Action Plan. This sets out various measures to strengthen European players in the wind power supply chain. The Member States are responsible for implementing most of these measures. In December 2023, all Member States except Hungary and over 300 companies signed the European Wind Charter and committed to implementing the measures in the Wind Power Action Plan. This (albeit non-binding) declaration aims to create a sustainable and competitive EU wind power supply chain. Cooperation between Member States “in identifying obstacles in approval procedures” is to be strengthened. Domestic production in particular is to be promoted. Aspects such as cybersecurity and unfair competitive practices are also set to play a role in future tenders.

1.3. Net Zero Indurstry Act

The Net Zero Industry Act is also intended to drive European production. The Act was adopted by the Council of the EU on 27 May 2024 and came into force on 29 June 2024. By 2030, the EU is intended to be able to cover at least 40% of its annual demand for clean technologies itself. Procurement from third countries is to be avoided wherever possible. If a bidder complies with environmental requirements, additional costs of up to 20% must be accepted, which means that it will no longer be possible to award a contract to another bidder which is noncompliant with environmental requirements purely based on price.

2. Activity by german legislators

In the first year of the current legislative period, the coalition government announced it would speed up the restructuring of the energy sector with various projects (which became known as the Easter Package 2022). This was the start of a set of regulatory innovations, such as regulations to expand the electricity grid and offshore wind power, as well as the German Onshore Wind Act (*Wind-an-Land-Gesetz*).

The Easter Package included an amendment to the German Renewable Energy Act, which came into force on 1 January 2023. This is the biggest amendment to energy policy legislation in several decades. It is intended to lay the foundations for Germany to become carbon neutral. The German Renewable Energy Act significantly increases the new expansion target for wind and solar power. By 2030, at least 80% of electricity consumption is to come from renewables. Based on total electricity consumption of 750 TWh, this results in a target of 600 TWh. The legislators have also decided in advance on the question of value, namely that the construction and operation of plants for the generation of electricity from renewable energies and the associated ancillary facilities is in the overriding public interest and serves public safety. Until electricity generation in Germany is almost greenhouse gas-neutral, renewables are to be prioritised in the assessment of protected interests.

As early as 28 May 2022, the German Act to Reduce the Cost Burden of the Renewable Energy Act Levy (*Gesetz zur Absenkung der Kostenbelastung durch die EEG-Umlage*) was introduced, abolishing this levy completely. In the future, the promotion of renewables will therefore be

funded entirely from the federal budget, which will provide considerable financial relief, particularly for companies with high electricity costs.

The conversion of support for renewables from operating subsidies to investment-cost subsidies was recently announced in the growth initiative adopted by the federal cabinet along with the federal budget on 17 July 2024. It remains to be seen whether and when these far-reaching changes to the funding strategy will be implemented, especially given that the 2025 federal budget has not yet been finalised.

III. Relevante asset classes

To attract the investment needed to reach this goal, the federal government in recent years has created a wide range of regulatory incentives and has identified and removed barriers to investment. Expansion targets in numerous asset classes have been increased, thus creating incentives for further funding. In the future, section 2 of the German Renewable Energy Act will stipulate the overriding public interest in the construction and operation of renewable energy generation plants, which is likely to be decisive when it comes to weighing the options in approval procedures. At the European law level, RED III and the EU emergency regulation are intended to streamline authorisation procedures, which will boost the further expansion of renewables in the future. This will lead to faster approval procedures in Germany as well, not only for solar and wind, but also for geothermal energy in the future.

Looking at the individual asset classes, the situation is as follows:

1. Offshore wind

There is clearly too little capacity in this area compared to the great interest shown by investors, including those from outside the sector. As a result, project rights are awarded in dynamic bidding procedures, which ultimately require an additional payment from investors to Germany in order to be successful (known as negative bids). The investors with the greatest financial resources are prevailing, while the initial project developers and strategic investors appear to be withdrawing from the bidding process. In the medium term, the resulting increases in project costs will further increase the high energy prices (or will not reduce them without further subsidies), as the additional costs will (have to) be passed on to customers via PPAs. The federal government is trying to counteract the shortage of available space and is expanding the areas for building offshore wind farms. It remains to be seen whether this will be able to meet the high demand and lead to a relaxation on the bidding side. As new plants take a long time to build, the actual impact of the measures and the influence on the energy price will only become apparent in the future.

Outlook for investors

At the end of 2023, 1,566 offshore wind turbines with a total capacity of 8.5 GW were in operation in Germany. The most recent plan currently available from the Federal Maritime and Hydrographic Agency is a draft site development plan dated 7 June 2024[2], which aims to increase the previously planned expansion target for 2035 (40 GW) by 10 GW. It is likely that certain areas designated for the expansion of offshore facilities (N-9, N-12, N-13, N-14, N-16 and N-17) will be made larger. The newly designated areas are to enable additional expansion with an expected total capacity of 28 GW. Together with the planned areas, the federal government expects an estimated total capacity of approx. 70 GW by 2045.

On 1 March 2024, the Federal Maritime and Hydrographic Agency determined the suitability of areas N-9.1, N-9.2 and N-9.3 for tendering by the Federal Networks Agency in accordance with Part 3 Section 5 of the German Offshore Wind Power Act (*WindSeeG*) by means of a statutory order. This corresponds to a volume of at least 5.5 GW. On 28 February 2024, the Federal Networks Agency put these areas out to tender with a deadline of 1 August 2024[3]. In addition, on 29 January 2024, the Federal Networks Agency put out to tender sites with a capacity of 2.5 GW in areas that had not been centrally pre-examined[4]. Zero-cent bids were submitted for both designated areas, meaning that a dynamic bidding process was required for the second time. This shows that offshore expansion is already profitable without subsidies.

[2] https://www.bsh.de/DE/THEMEN/Offshore/Meeresfachplanung/Laufende_Fortschreibung_Flaechenentwicklungsplan/lfd_forts_flaechenentwicklungsplan_node.html;jsessionid=624CF9F95E7F160E4A29B8C2912A7025.live11312, accessed 17 October 2024

[3] https://www.bundesnetzagentur.de/DE/Beschlusskammern/BK06/BK6_72_Offshore/Ausschr_vorunters_Flaechen/start.html, accessed 17 October 2024

[4] https://www.bundesnetzagentur.de/DE/Beschlusskammern/BK06/BK6_72_Offshore/Ausschr_nicht_zentral_vorunters_Flaechen/start.html, accessed 17 October 2024

Apart from these tenders, it should be noted that there was only an increase in capacity of 0.4 GW in 2023 as a whole. The period between the award and actually going into service is long. For example, the projects with a bid date of 1 June 2023 (volume of 2,000 MW) are scheduled to go into service by 2030.

2. Onshore wind

The main changes here are intended to speed up approval procedures and make previously unavailable areas usable. Of particular interest is the redesign of the state opening clause: While state law provisions were previously seen as the reason for the stalled expansion a few years ago, the new regulation could now ensure progress. This is particularly true given that onshore wind has so far accounted for the majority of renewable electricity generated. The changes made are slowly starting to take effect, although investor interest in this area is growing too tentatively: The total volume of subsidies for onshore wind put out to tender by the German government in 2023 has not been fully used up. In absolute figures, there has already been a significant increase over the bid volumes of previous years. However, the unallocated volume will have to be added in the coming years in order to achieve the ambitious expansion targets.

Outlook for investors

It may be that it is simply too early to see the effects of the Easter Package on onshore wind. This is because, unlike for offshore wind turbines, the requirements of federal law still have to be implemented in regional planning and applied in the municipalities. In November 2023, the Conference of State Premiers drew up a pact for accelerating, planning, approval and implementation. In particular, the pact sets out simpler and faster planning and approval procedures, including for onshore wind turbines. While it was planned that the first results would be presented in the first quarter of 2024, according to the German Chamber of Commerce, only 18 of 53 legislative amendments had been started as of June.

Further developments remain to be seen.

However, the growth in bids for onshore wind shows one of the main dilemmas: If the planned increase in expansion (target of quadrupling the total volume of awarded bids in 2023 compared to 2018-2022/further doubling of tendered capacity in 2024 compared to 2023) is to be achieved, this will only be possible with the approval of higher bids, i.e. higher subsidies in the event of low energy prices. However, the expansion is important. In addition to photovoltaics, energy sources that produce energy at times when there is no sun must be available to ensure grid stability.

3. Photovoltaics

The expansion of plants in this area is growing exponentially, with 14 GW added for the first time in 2023. By comparison, only 7.2 GW were added in the previous year (2022). This means that the expansion target for 2023 was even exceeded in the PV sector. Solar Package I[5] has once again raised the expansion targets for 2024, and further regulations and measures have been adopted to cut red tape and speed up the process; in particular, approval procedures have been simplified and technical regulations have been relaxed and standardised, especially for rooftop solar panels, making PV systems more attractive for private and commercial users. For political reasons, this is particularly pleasing because solar power is the energy source that requires the lowest investment sums and projects can be realised relatively quickly. Further changes, which were initially omitted from Solar Package I, are to follow in a Solar Package II. In the area of photovoltaics, it will be crucial to organise urban planning in such a way that sufficient areas are available in order to avoid cost increases which are later passed on to energy prices due to competition for the same areas. Incentives and even obligations to expand rooftop and C&I PV could further stabilise the trend. However, current developments in the area of component production are raising the question, among investors too, of reliable business models and additional funding incentives from the federal government. Following the rejection of requests for support from the federal government, individual manufacturers of photovoltaic panels have now announced that they will relocate production from Germany to other countries in order to withstand the price war with Chinese products in particular (e.g. USA and Canada as target countries). Now that

[5] https://www.noerr.com/de/insights/solarpaket-neuregelung-des-mieterstroms, accessed 17 October 2024

SMA, a German manufacturer of inverters, also recently issued a profit warning, the price pressure in the industry appears to be spreading to the next components.

Outlook for investors

In contrast to the subscription for onshore plants, the bidding rounds for PV plants in both the first and second segments were always significantly oversubscribed. For photovoltaic plants in the first segment, a total volume of 5,237 MW was awarded with a bid volume of 13,007 MW. For photovoltaic plants in the second segment, a volume of approx. 597 MW was awarded in 2023, resulting in an expansion of 14 GW.

Solar Package I contains measures for the further expansion of ground-mounted systems, the facilitation of rooftop photovoltaics and balcony photovoltaics and the simplification of tenant electricity and communal building supply. For instance, PV systems with an installed capacity of more than 100 KW (and less than 200 KW) will no longer be obliged to market directly in future. Surplus quantities can be passed on to the grid operators in future without remuneration, but also without direct marketing costs, which is intended to benefit particularly system operators with high energy consumption and was previously only possible for systems below 100 KW. Solar Package I contained a resolution passed by the German Paliament calling on the federal government to submit proposals in Solar Package II for effective measures to make the expansion of renewables more cost-effective.

Another aspect that deserves attention when it comes to solar power generation is increasing photovoltaic roof obligations. The coalition agreement already includes a target stipulating that the use of roof surfaces for solar power generation is to become mandatory for new commercial buildings and the general rule for new private buildings. This plan has already made varying degrees of progress in the federal states. There are various forms of this, with an obligation to utilise solar energy on roofs so far mostly only applying to new buildings; for existing buildings, which make up the majority of buildings, state regulations only partially provide for an obligation in the case of fundamental roof renovations. These trends have already reached the industry. Rooftop PV is not only used for new private buildings, but rooftop PV models are also becoming increasingly common in the C&I sector. Various rooftop PV developers have established themselves on the market (sometimes offering complete solutions including a geothermal heat pump and wall box for home charging).

In the future, issues relating to the CSDDD Directive and the EU‘s Forced Labour Regulation[6], which provides for comprehensive reporting on supply chains and a ban on products manufactured using forced labour on the EU market, will play a particularly important role for investors in the photovoltaics industry. While the CSDDD Directive still has to be transposed into German national law (the coalition government’s position is currently unclear in this regard), the Forced Labour Regulation implements the corresponding ban directly. As around 90% of photovoltaics panels are today produced outside the European Union, investors will have to scrutinise supply chains closely in future.

4. Hydrogen

With respect to hydrogen, an entire industrial sector is being ramped up. The challenge is to establish the production, import and sales side as well as the infrastructure at the same time and at high speed. Businesses and politics alike seem to want to take on the major challenges associated with this: In addition to implementing the import strategy to cover the expected demand of the German economy, the expansion of domestic and intra-European production and the required infrastructure (hydrogen core network) is being driven forward in order to avoid unilateral geopolitical dependencies. Compared to solar, onshore and offshore wind, the hydrogen sector involves higher risks for investors (new market segment, technology not yet tried and tested, etc.) and also higher profitability requirements. But investors seem to have confidence that the federal government can set up sufficiently attractive subsidy schemes to steer investment in green hydrogen to Germany in the face of international competition.

[6] https://www.noerr.com/de/insights/lieferketten-compliance-csddd-und-eu-zwangsarbeits-verordnung-kommen, accessed 17 October 2024

Outlook for investors

There are projects to produce green hydrogen worldwide, with various national and pan-European funding schemes. After years in which investors tended to look for projects outside Germany, a sufficient basis of trust has now apparently been created and so a wide variety of projects are currently being planned at the same time by different players. Even lenders are prepared to invest in this sector.

This is noteworthy especially because none of these projects will be able to manage without sufficient government support and the corresponding subsidy schemes are still in the start-up phase or being coordinated with the EU Commission. Ultimately, however, further developments will have to be awaited.

While larger power plants with a capacity of several 100 MW will only be operational in one to two years (at the earliest), the number of planned projects already foreseeable could be a sign the federal government is planning the right incentives in this area and (at least for the time being) enjoys sufficient confidence.

5. Electricity grid

A high-performance electricity grid is the cornerstone and one of the greatest challenges of the energy transition in Germany. There is a consensus on this, as the electricity generated from renewable energies must be transported to the consumer. This urgently requires expanding the transmission and distribution grids. Financing this exclusively via grid fees appears to be a major challenge and is not attractive, especially for investors. In addition, the transmission and distribution grids are critical infrastructure where Germany will certainly keep a close eye on private investors and scrutinise their reliability and suitability.

Outlook for investors

Grids are natural monopolies – in other words it would be practically unfeasible and above all macroeconomically undesirable to have several electricity grid operators in one region. For this reason, there are four large transmission system operators in Germany, each of which operates the grid of a control area: TenneT operates the control area extending from Schleswig-Holstein to Bavaria, 50Hertz operates the control area extending across eastern Germany and Hamburg, Amprion operates the control area in North Rhine-Westphalia, Rhineland-Palatinate and Saarland and Transnet operates the control area in Baden-Württemberg.

The expansion of the TenneT grid in particular, which is owned by the Dutch state, is crucial for the energy transition. An attempt by the federal government to acquire the German part of TenneT and form a state-controlled Deutsche Netz AG recently failed due to the associated costs for the German budget. This is an example that clearly shows the limitations imposed by the Federal Constitutional Court's budget judgment (BVerfG, judgment of 15 November 2023 – 2 BvF 1/22 –, BGBl I 2023, no 358). While private investors naturally consolidate acquisition costs with the acquired companies when taking over companies and parts of companies, the federal government, while financing the acquisition costs via its development bank KfW, would have had to recognise the interest and repayment burden in the federal budget. Whether this takeover would really have been the right step, however, was disputed among experts, irrespective of the budgetary problem. In addition to the high purchase price, considerable investment costs would have been incurred for the further expansion and repair of the grid. It can thus rightly be questioned whether, in view of these sums, it would have been desirable for the federal government to bear these costs as the future owner, simply because of its low refinancing costs (compared to the industry) and low expected returns.

The federal government now appears to be seeking a minority shareholding. The Netherlands has signalled that it is not prepared to make the necessary investments in upgrading the German electricity grid. But they are also sceptical about diluting their shareholding by taking on external

investors who would finance the investments to upgrade the grid. Further developments remain to be seen, even if a decision for or against seems necessary. Maintaining the status quo is not an option.

Recently, the discussion also arose as to whether the electricity grid should be laid as underground cables as previously planned or whether a switch to overhead lines should be made to save costs. Further developments in this regard also remain to be seen.

6. Battery storage technology

This sector is a goldmine for investors, at least in technical terms. Lithium-ion batteries, lithium iron phosphate cells (LFP) or sodium-ion batteries: "Faster, higher, farther" is the motto, and these battery technologies have long been planned not only for electromobility, but also for large-scale battery storage systems. This is also happening in the context of other electricity storage systems (Power to X) not developing at the same speed, but still being subsidised by the German government. A new market environment is now set to develop around carbon capture and storage. The federal government has now started to consider the offshore storage of CO2 for this purpose, but has not yet given any specific consideration to sensible transport routes. In view of the high-value investments, long-term investment security is needed here.

Outlook for investors

Research and development in the field of storage solutions has been booming for years. Some investors are speculating on an invention that will revolutionise the electricity storage market, with higher efficiency for medium and long-term storage as well as short-term availability.

At the same time, the federal government is providing further incentives for the activation of switchable loads. This should result, for example, from the new section 13k of the German Energy Industry Act *(Energiewirtschaftsgesetz – EnWG*), which will start an initial trial phase on 1 October 2024. According to this, electricity consumers (not just storage media) are to be incentivised to activate additional electricity consumption – known as switchable loads – if they purchase peak loads during periods of surplus energy. In this way, the legislators aim to prevent increasingly large amounts of energy having to be curtailed in order to avoid grid overload. After the trial phase, the electricity volumes to be curtailed will be awarded in a competitive tendering process.

Overall, the market is in a state of flux and further developments remain to be seen. Only time will tell which of the incentives set will be decisive for investors. The market for battery storage, however, will continue to boom as the various technologies become increasingly mature and demand continues to rise enormously. After all, as long as the EU continues to stipulate that no new vehicles with internal combustion engines are to be registered from 2035, battery storage systems for electric vehicles will remain the leading technology, at least for a transitional period.

7. Geothermal energy

This is a promising asset class, but one that is associated with large initial investments and, if the expertise is not available, with considerable technical and geological risks. The biggest obstacle for investors so far appears to be the exploration risk, although in North Rhine-Westphalia, for example, there are initial attempts to mitigate this via funding schemes from the state government. Although everyone is talking about the transition to green heating and supplying heating locally, it remains to be seen how investors will assess this technology and the federal government's expansion efforts.

Outlook for investors

The expansion of carbon-neutral heating networks is becoming increasingly important. Geothermal energy is playing an increasingly interesting role here, as it is seen as an inexhaustible and carbon-neutral source of heat that can be used to supply both electricity and heating. According to studies, geothermal energy could meet more than 25% of heating requirements across Germany in the future. The draft of the planned accele-

ration law adopted by the Federal Cabinet on 4 September 2024 planned acceleration law will reduce procedural hurdles and should enable geothermal projects to be implemented more quickly, which will make planning and implementation more attractive and easier to plan for companies. The North Rhine-Westphalia Geothermal Energy Masterplan[7] in particular has the potential to inspire other federal states to follow suit and promote dynamic development in the use of geothermal energy, which will bring both challenges and considerable benefits for climate protection as well as opportunities for businesses and municipalities.

However, geothermal projects may entail specific technical and geological risks and need considerable expertise and initial capital. It remains to be seen to what extent this will make investors cautious in their first attempt, given the current incentives offered by the federal government, as well as how the market will evolve once the first drilling failures or technical challenges occur.

8. Power generation from fossil fuels

The decision to phase out fossil fuels such as nuclear power and coal has been made; a return seems remote - even after the latest discussions. Although other fossil fuels such as coal, oil and natural gas are currently still being used for the transition and to ensure security of supply and continue to generate returns for operators in view of price and volume developments, this business model will cease to exist in the foreseeable future. In addition, CSDDD and the Taxonomy Regulation, among other things, are imposing increasing reporting obligations on operators.

Outlook for investors

As a result of these challenges, more and more strategic investors are withdrawing from operating fossil fuel power plants or the associated infrastructure. This is because the pressure to justify it is becoming too great. There are opportunities here for family offices and private investors to profit from the remaining useful life of these assets and utilise them until the legally defined deadlines expire, or to transform them into green assets using private capital, as is already happening in many cases in the refinery and power plant sector.

IV. Conclusion

Analysis of the asset classes of offshore, onshore, photovoltaics, grids, storage media, hydrogen and geothermal energy shows that in virtually all areas, in the past investors have alternated between phases of greater caution and phases when they were more willing to invest. In almost all areas, the federal government has systematically removed one specific obstacle to investment, namely the especially long, complex and uncertain approval procedures. Changes to the regulatory framework have made it possible to use new areas for land-based power generation plants, thereby reducing competition for specific plots of land. Technological developments and refinements also make investments more attractive.

However, state subsidies are still required in almost all areas in order to enable profitable investments. There is still scope for adjustment in some areas, but overall the current political positioning appears to create sufficient confidence to attract investment to Germany in all areas. Only in the area of (electricity) grids does it remain to be seen how investments in grid operators will be organised in order to open up to investors and whether grid fees will be high enough to attract them. It also remains to be seen whether, and for how long, the current confidence will last – in particular, how investors will incorporate changes in political majorities and any associated changes in priorities into their planning. In some asset classes, there are already loud calls for hedging independent of legislation, while in others it is still being discussed behind closed doors.

Many are questioning whether the investment incentives presented are large enough to achieve the expansion targets set by the federal government. Others point out that 2023 was the first year in which renewable energies accounted for more than half of electricity consumption. An increase in electricity generation from renewables was also recorded in absolute figures (approx. 267 billion kWh). Whether these figures are high enough or whether the critics are right is not within the remit of this article.

[7] https://www.land.nrw/pressemitteilung/stabile-energiepreise-klimaschutz-und-versorgungssicherheit-nordrhein-westfalen, accessed 17 October 2024

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