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COMMISSION OPINION

of 18.10.2021

**pursuant to Article 20(5) of Regulation (EU) 2019/943 on the implementation plan of
Germany**

(ONLY THE GERMAN VERSION IS AUTHENTIC)

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I. PROCEDURE

On 17 June 2021 the German ministry for economy and energy ('BMW_i') notified an implementation plan for Germany, prepared pursuant to Article 20(3) of Regulation (EU) 2019/943¹. Article 20(3) of Regulation (EU) 2019/943 requires Member States with adequacy concerns to set out measures and a timeline to eliminate regulatory distortions or market failures on their markets in an implementation plan.

As set out in the relevant Commission Guidance,² this requirement reflects the recognition that markets, if well designed, free of regulatory distortions and sufficiently connected to the main EU electricity networks, can provide the right amount and type of capacity to meet demand. Capacity mechanisms should only be introduced to address residual concerns, i.e. problems or circumstances which cannot be solely resolved by market reforms. Once the residual concerns have been eliminated and market reforms have started to work, adequacy problems are expected to decrease and ultimately disappear. To enable this, regulatory measures to eliminate distortions and to reform markets need to be effective and credible for investors and all other market participants.

On 14 July 2021, BMW_i shared additional information by email regarding the existence or lack of a price impact of redispatching.

On 20 July 2021, the Commission services sent a number of questions to the BMW_i, requesting further information on several elements of the German electricity market and the capacity mechanism.

Following a call on 29 July 2021 providing first explanations, the BMW_i sent its answers by email of 13 August 2021.

Pursuant to Article 20(5) of Regulation (EU) 2019/943, the Commission is required to issue an opinion on whether the proposed measures and the timeline for their adoption are sufficient to eliminate the regulatory distortions or market failures.

¹ Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, 14.6.2019, OJ L 158, p. 54

² https://ec.europa.eu/energy/sites/default/files/market_reform_plan_guidance_final.pdf

II. DESCRIPTION OF THE IMPLEMENTATION PLAN

Germany has notified the implementation plan with a view to tendering new contracts as part of the capacity reserve (*Kapazitätsreserve*) as set out in Paragraph 13e Energiewirtschaftsgesetz ('EnWG'). The German implementation plan provides a good overview of the German electricity market and recent developments at national, regional and European level in the electricity market. It also provides information on the capacity reserve.

In its implementation plan, Germany sets out in particular the following:

1. General wholesale market conditions

The plan states that Germany has well-functioning intraday and day-ahead markets in the electricity sector, which provide non-discriminatory access to all market participants. The plan further highlights the high liquidity in the joint Germany-Luxembourg bidding zone.

At a European level, the plan supports stronger cross-border coordination in loss of load situations, as well as further pursuit of market integration.

The plan describes a number of policy choices which, as the plan recognizes, can have an impact on the electricity price. These include:

- The phase-out of nuclear energy by end 2022;
- The phase-out of coal-based electricity generation agreed for end 2038 at the latest;
- The support for renewable energies under the Erneuerbare Energien Gesetz (EEG);
- The support of combined heat and power via the Kraft-Wärme-Kopplungsgesetz (KWKG).

On the other hand, the plan argues that the following measures have no impact on wholesale electricity prices:

- The network reserve pursuant to Paragraph 13d EnWG;
- The capacity reserve pursuant to Paragraph 13e EnWG;
- The placement of lignite generation on security standby pursuant to Paragraph 13g EnWG.

For this second group of measures, the plan states that they keep the respective power generation assets off the market, thereby avoiding a direct impact on electricity prices from the reserves. This includes activation of the capacity reserve only once all the market-based measures, including intraday trading and balancing energy, have been exhausted. The German authorities have confirmed that the above reserves do have testing and ramp-up periods, but that any power produced in those periods would be compensated by downward redispatching of other plants, thereby compensating the market impact. The German authorities have also confirmed that the network reserve is to be used subsidiary to redispatch, including cross-border redispatch, and countertrading. They recognize that this requires further improvements in practice.

The plan also argues that redispatching using power plants operating on the market has no market impact, as operators are compensated on a cost basis.

The plan further sets out that Germany intends to make available 70 % of the capacity on interconnectors for cross-border market coupling in order to fulfill the needs of Articles 15 and 16 (8) Regulation (EU) 2019/943 but also in order to improve market integration of renewable energies, increase competition and reduce supply prices.

The latter measure is the only measure indicated in the wholesale market section of the plan.

The plan confirms that there are no formal or informal price caps/floors in day ahead and intraday markets other than the technical limits currently applied within European single day-ahead and intraday coupling as set out in Article 41(1) and 54(1) of Regulation 2015/1222 establishing a guideline on capacity allocation and congestion management³ and no other measures which prevent free price formation.

2. Balancing markets

The plan describes the functioning of the German markets for balancing capacity and balancing energy. Since 2 November 2020, balancing capacity and balancing energy for both manual and automated frequency restoration reserves (aFRR and mFRR) have been tendered separately. Balancing capacity and energy are both tendered in 6 daily blocks of 4 hours each, with the market closing one hour before the respective block begins. This will be changed pursuant to Regulation (EU) 2017/2195 establishing a guideline on electricity balancing⁴ so that balancing energy is procured in 96 15-minutes slots per day.

So-called “free bids” by market participants which are prequalified as balancing service providers but were not successful in the balancing capacity market are allowed.

The imbalance settlement costs, to be borne by balance responsible parties which are in imbalance, cover the costs of balancing energy, whereas the cost of maintaining balancing capacity is socialised over the network tariffs.

The balancing energy price is defined to be at least as high as the intraday price, so as to ensure that there is no incentive for market participants to be in imbalance. A scarcity component is added as soon as the balance of the German Grid Balancing Alliance reaches 80% of the existing balancing capacity, in order to strengthen incentives to remain in balance in periods of high imbalance in the system.

After introduction of separate auctions for balancing capacity and balancing energy, very high prices for balancing energy have occurred, frequently reaching the price limit of then 99,999 €/MWh⁵. In consequence, on 19 January the price limit in the balancing energy market was reduced to 9,999 € MW/h. The plan sets out that one cause for this could be a structural

³ Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, OJ L 197 of 25 July 2015, p.24.

⁴ Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing, OJ L 312 of 28 November 2017, p.6.

⁵ The plan refers to this limit as a “technical bidding limit”. It should be noted however that, contrary to the technical bidding limits in the day-ahead and intraday markets, this limit is determined at a purely national level and not increased once it is reached or expected to be reached.

disadvantage for “free bids”, which would have to price in the cost of maintaining capacity into the price of their energy bids. In consequence, it is argued, no free bids appeared. Another cause raised in the plan is that participation in the – technically less demanding and more liquid – intraday market was more attractive to market participants than participation in the balancing energy market.

In their answer to the Commission questionnaire, the German authorities explain that while a considerable number of market participants are prequalified for balancing markets in Germany, the market share of the 4 largest providers on the balancing *energy* market is very high (between 50 and 90 % depending on the product).

While the plan sets out that the German authorities and network operators continue investigation of the issue, they do not expect taking any measures to change the design prior to the start of operation of the European platforms for the exchange of balancing energy for aFRR and mFRR (PICASSO and MARI platforms) which is planned for 2022.

3. Demand side response

Germany explains that demand side response can participate in wholesale markets both individually and via aggregators, as long as they meet the respective requirements (such as prequalification for balancing markets). German authorities explain in the plan that in principle demand side response should compete with other flexibility options such as storage and flexible generation on the basis of price signals. While the plan sets out that so far, in Germany, flexibility has been provided almost exclusively by generation facilities and (pumped) storage, it argues that this is bound to change with the ongoing energy transition. Where consumers provide balancing services as part of another balancing group than that of their supplier, they are obliged to pay a fee, putting the supplier in the position as if the balancing service had not been provided. This arrangement is planned to be expanded to other flexibility services where consumers adjust their consumption.

The plan also sets out that large commercial and industrial consumers can benefit from reduced network charges under certain conditions. Section 19(2) sentence 1 and 2 of the Electricity Grid Fee Ordinance (StromNEV) lays down the prerequisites for granting network charge reductions. According to Section 19(2) sentence 1 StromNEV, a final consumer is entitled to reduced, individualised network charges if it can be foreseen that their peak load will differ greatly from the simultaneous annual peak load of all withdrawals from this grid or transformer level. However, the plan also sets out that this means that those consumers can *“orient their consumption primarily to receiving reduced grid fees as a result of their behaviour”*.

The plan recognizes that cost-based redispatch is not suitable for integrating demand response into congestion management. Germany argues that using market based redispatch, as provided for in principle (with exception possibilities) in Articles 13 and 32 Regulation (EU) 2019/943, would allow for so-called “inc-dec gaming”, strategic bidding increasing the congestion problem which the service provider would then be paid to address. German authorities declare

that they are working on ways to integrate demand response into congestion management while avoiding the risk of inc-dec-gaming.

Germany, acknowledging in the plan that smart metering can help *“optimise the utilisation of the distribution network”*, as well as *“facilitate the introduction of dynamic electricity price contracts, which in turn are required for the flexibilisation of demand and DSR”*, is proceeding with a targeted deployment. Building on an earlier small scale smart meter rollout, Germany will be installing smart meters, within eight years as of 24 February 2020 and the issuing of the respective BSI *“market declaration”*⁶, to all final consumers with an average annual consumption between 6,000 and 100,000 kWh. This segment represents 2.1 million metering sites, or just 5% of all consumption points (households, business customers, industrial users). The interim target is to reach within three years (early 2023) 10% of those concerned. Statutory requirements to install smart meters also exist for others, e.g. producers of renewable energy or flexible consumers; however, a *“market declaration”* has yet to trigger the rollout in these categories.

The progress with the ongoing selective rollout was recently affected by a Higher Court decision that has provisionally suspended the installation obligation (for the plaintiff)⁷. In order to address this challenge, and as noted but not further detailed by the German authorities⁸, a package of measures was introduced (and entered into force on 27 July 2021) consisting of legislative adjustments and improvements in the administrative procedure. The authorities expect with this to increase legal certainty and regain speed with the rollout. No analysis was made available regarding the implications of this development to the rollout programme, nor on the effect to the wider uptake of dynamic price contracts and incentives to load adjustment, for which *“smart meters are a technical prerequisite”* as noted in the plan.

Accordingly, smart meters equipped with the right functionalities, supporting amongst others frequent communications and flow of data – at least in 15-minutes’ intervals for the currently certified metering equipment in Germany – can *“give final consumers a possibility to manage their electricity consumption or feed-in in a more convenient and better way, and to benefit from new types of purchasing contracts”*. Currently, as noted in the plan, dynamic pricing contracts, which for example reflect the price on the day-ahead market, are only available from two providers. In their reply to the Commission questionnaire, the German authorities state that *“final customers with smart metering systems are entitled by law to a dynamic electricity price contract”*, however, *“the current status of the roll-out does not permit any predictions about the development of dynamic pricing”*.

⁶ This prerequisites the certification by the Federal Office for Information Security of the first smart meter gateway that took place in December 2018.

⁷ With an urgent decision (case 21 B 1162/20) of 4 March 2021, the Münster Higher Administrative Court has provisionally suspended the enforceability of the BSI market declaration and the installation obligation for smart meters vis-à-vis those who contested it in court. The main proceedings are still pending before the Administrative Court of Cologne.

⁸ Germany’s reply of 13 August 2021 to the Commission questionnaire.

4. Retail markets: regulated prices

Germany sets out that no electricity price regulation is applicable.

5. Interconnectors and congestion management

The plan acknowledges the importance for the European electricity market of further expanding both Germany's internal electricity transmission grids and its interconnections to neighbouring Member States. It sets out that Germany is strongly interconnected to its neighbours, and that additional interconnection projects are in development. Fourteen interconnector projects are enshrined in law, several of which are projects of common interest under Regulation (EU) 347/2013⁹ on guidelines for trans-European energy infrastructure. German authorities are confident that the construction of the interconnectors currently being planned and built will suffice for ensuring compliance with the criteria set out in Regulation (EU) 2018/1999¹⁰ on the governance of the Energy Union and Climate Action for the degree of electricity interconnection to be reached by 2030, both in relation to peak load and in relation to installed renewable generation capacity. Several thousand kilometres of onshore and offshore lines, both AC and HVDC, have been added in Germany, with several additional thousand kilometres being planned or under construction. In addition to 7500 km expansion of the high-voltage grid already planned before, the recent revision of the Federal Requirements Plan Act added another 3500 km in order to take account of the revised target to achieve a share of up to 65 % of renewable energies in gross final electricity consumption in Germany by 2030 and to allow for European electricity trading to be expanded.

Adjustments to planning legislation also have the aim to speed up planning and approval procedures for network expansion, e.g. by facilitating the laying of empty pipes next to cables, thereby easing future expansion or by shortening appeal procedures.

Furthermore, German network operators aim to increase the useable transmission capacity by adding phase shifting transformers to control power flows, and by increasing the share of overhead power lines that are monitored locally or regionally. Germany aims to ensure that 60 % of high-voltage overhead lines are individually monitored within five years. So-called grid boosters, major storage installations used for stabilising the network in case of line outages, are also planned by 2030.

The German grid contains structural congestions inside Germany, notably between northern and southern Germany, as confirmed in a 2019 report¹¹ by the four German transmission system operators pursuant to Article 14 (7) Regulation (EU) 2019/943. Germany has adopted an action plan pursuant to Article 15 Regulation (EU) 2019/943, based on which Germany

⁹ Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure, OJ L 115 of 25 April 2013, p. 39.

¹⁰ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, OJ L 328 of 21 December 2018, p.1.

¹¹

https://www.bundesnetzagentur.de/DE/Beschlusskammern/BK04/BK4_91>Weiteres/Engpassbericht/190704_4_UENB_Engpassbericht_final_BA.pdf?blob=publicationFile&v=3

intends to follow a linear trajectory increasing the share of capacity available to the market up to 70 % of the capacity on critical network elements by the end of 2025.

Redispatch in Germany is, based on the exception set out in Article 13 (3) Regulation (EU) 2019/943, cost based. Market based redispatch is generally not used. Germany argues that a certain degree of redispatch is efficient, as it can significantly reduce the need for network investments.

In 2019, approximately 2.8 % of total renewable energy production in Germany was curtailed, and approximately 4 % of conventional generation was subject to redispatching.

Germany expects the planned network expansion measures to be sufficient to significantly reduce congestion and regards the high level of congestion management currently needed as a transitional phenomenon (although the declared aim is not to develop a network fully free of internal congestion, which would be regarded as inefficient). In their answer to the Commission questionnaire, German authorities set out that the network development plan is capable of creating a network with only limited internal congestion. The network development plan currently under development will already contain projects and scenarios with a view to network needs in 2035.

As regards new connection projects, Germany expects two new direct current cables becoming operational by 2025 (HansaPowerBridge between Germany and Sweden and 700 MW bidirectional capacity and NeuConnect between Germany and the third country the United Kingdom, with 1400 MW bidirectional capacity). By 2030, a total of five new alternating current interconnections are planned to be completed (1000 MW bidirectional capacity to Luxembourg, 1500 MW and 300 MW bidirectional capacity to France, 2000 MW bidirectional capacity to Austria, and a connection with 100 MW from and 600 MW towards the third country of Switzerland).

Furthermore, as of 1 October 2021, the regimes for curtailment of renewable energies (Einspeisemanagement, EinsMan) and redispatch of conventional generation will be integrated into one process¹². This will also include all generating installations as of 100 kW (and smaller, where they can be managed by the grid operator), whereas currently only installations as of 10 MW were concerned.

German authorities also declare that recent reforms of the Anreizregulierungsverordnung aim at incentivising transmission system operators to reduce redispatch needs by introducing a bonus/malus system, and that there are plans to introduce such incentives for distribution system operators.

Germany argues that as a transitional measure, support schemes for generation installations using renewable energies or combined heat and power contain locational elements, aiming at ensuring better synchronisation between network rollout and generation investments. While the plan mentions that other possibilities such as geographically differentiated grid connection

¹² It is understood that previously curtailments in EinsMan were often not compensated by redispatch, and thus created imbalances in the system.

charges, or differentiated grid usage fees for generators are being studied, no concrete measures in this direction are proposed.

III. COMMENTS

The Commission has the following comments on the implementation plan as notified:

1. Wholesale markets

The Commission welcomes the detailed description of the market functioning in the different time segments of the German wholesale markets. It is also welcomed that Germany recognizes the importance of cross-border trade in electricity for market integration of renewable energies, improved security of supply and competitiveness.

The Commission regrets that Germany did not analyse in its plan in further detail what impact the different policy-driven market interventions have on price formation and thus on the eventual lack of market signals to ensure security of supply. Indeed, it is without question that many measures to achieve policy objectives such as the nuclear phase-out and the support of renewable energies are allowed. European law also allows to maintain a single bidding zone covering all of Germany subject to the Requirements set out in Articles 14 to 16 Regulation (EU) 2019/943.

However those measures have impact on market prices and investments. Thus, where such interventions would result in a lack of market-driven investments in generation, they could provide a basis for the introduction of capacity mechanism such as the German capacity reserve. If so, the aim of the implementation plan pursuant to Article 20 Regulation (EU) 2019/943 makes it necessary to recognise measures which intervene in market functioning as such, and, where they are required on justified policy grounds, to consider whether there are means to reduce their price impact.

Based on the information provided in the plan, it is impossible to determine the individual or combined impact on wholesale prices of the nuclear and coal phase-out, the renewable support, the support for combined heat and power, and the maintenance of a large bidding zone with internal structural congestion. As those measures are usually analysed in isolation, the implementation plan in particular provides an opportunity to analyse the combined market impact of those measures. There is also no analysis whether any measures could reduce those impacts, thus possibly reducing the need for a capacity mechanism, while ensuring that the policy objectives are still met. This concerns both the total price impact of the measures, as well as the impact on investment incentives coming from locational signals contained in the measures.

By way of example, in the consultation of the implementation plan, market participants have highlighted the impact of supporting renewable generation at negative prices where the negative prices occur for less than 6 hours. The Commission recognizes that this has been

shortened to 4 hours under the EEG 2021. As set out in the state aid decision on the EEG 2021¹³ in recital 530, German authorities plan to analyse the impact also of this shortened period. Recognizing that the EEG 2021 was only recently adopted, the Commission would welcome if such analysis or a clear time plan for conducting such analysis were integrated into the implementation plan. The answer provided to the Commission questionnaire already contains helpful information which could usefully be integrated into the plan¹⁴. In particular, it sets out that 123 of 211 hours with negative prices in 2019 (58%) and 173 of 273 hours in 2020 (63 %) were part of a 6 hour block, and that this would have increased to 155 hours (73%) or 221 hours (80%) respectively under a 4-hour-rule. Thus, already under a 4-hour-rule, the strong majority of hours with negative prices would not be covered by the support scheme. Given the relatively small share of remaining hours, it could merit reflection whether the introduction of a 0-hour-rule would not be consequent and feasible.

As renewables are expected to form the backbone of the German and European electricity supply in the future, the aim should be to increasingly integrate renewable electricity generation into the normal market functioning. This includes incentivising power generators not to generate in times of negative prices, thereby reducing overall system costs and costs to consumers. At the same time, the same study shows (as previously observed in other studies) that a significant share of conventional generation keeps producing energy in hours of negative prices (with 75 % of nuclear energy, 30 % of lignite and 14 % of hard coal-based generation still producing power in these hours, clearly showing that negative prices are not exclusively a consequence of subsidised production from renewable energy sources), which also merits further analysis. This becomes particularly relevant to enable the integration of high shares of renewable energies in low demand hours.¹⁵ It should be noted that negative prices are not as such an inefficient outcome of the market (as they can create incentives to react to oversupply situations or increase flexibility of resources) but frequent occurrences of negative prices could be a sign of other inefficiencies, and supporting generation in times of negative prices can unnecessarily increase overall system costs.

While the German authorities have confirmed that in principle, the network reserve is to be activated only where redispatch, including cross-border redispatch, and countertrading are insufficient to solve congestion, they have also recognized that this requires further improvements in practice.

The Commission reminds that the state aid approval of the network reserve has run out. It also stresses that this reserve shall be used only as a last resort and otherwise can have a significant

¹³ Commission Decision of 29 April 2021 in case SA.57779 (2020/N) – Germany - EEG 2021, available at: https://ec.europa.eu/competition/state_aid/cases1/202124/288710_2283746_342_2.pdf.

¹⁴ German authorities refer to a study prepared for the BMWi and available under https://www.energybrainpool.com/fileadmin/download/Studien/Bericht_2021-06-24_EnergyBrainpool_Studie-Negative-Preise_BMWi.pdf.

¹⁵ Based on its assumptions, the study expects 305 hours of negative prices in 2030, and 11.5 % of overall annual onshore wind generation to fall into these hours. Increasing the flexibility of gas-fired combined heat and power generation seems to be particularly relevant based on the assumptions made in the study, as it would be expected to reduce negative prices in 2030 by 66 %.

market impact. It is therefore of high importance that German authorities ensure that the order of principle between cross-border redispatch, countertrading, and the use of the network reserve is also respected in practice. Furthermore, as the network reserve has a relatively long advance notice period, it is important to ensure that it does not get activated if other congestion management measures become available after the first warning and before the actual activation of the network reserve.

The Commission invites the German authorities to include the functioning of the network reserve and its relationship to other congestion management measures in its plan and in the regular reporting on the implementation of the plan. The Commission highlights that unless technically not feasible cross-border redispatch needs to be used (see Article 13 (1) Regulation (EU) 2019/943). As administrative complexity is not equal to technical infeasibility, the Commission urges that where cross-border redispatch is not yet fully integrated, this shall be achieved as soon as possible. Since 1 January 2020, this is a legal obligation for both the transmission system operators willing to use those resources as well as those where the resource is located. Germany shall include a clear timeline towards meeting this obligation in its plan, and shall include in its reporting clear explanations as to the grounds for delays where this has not been fully implemented for periods after 1 January 2022.

2. Balancing markets

The Commission welcomes the detailed description of the German balancing market.

With a view to an appropriate pricing of scarcities on the electricity market, Article 20(3)(c) Regulation (EU) 2019/943 requires Member States to consider the implementation of a shortage pricing function. In its implementation plan, Germany points out that a scarcity component is added as soon as the balance of the German Grid Balancing Alliance (“Netzregelverbund”) reaches 80% of the existing balancing capacity, but states that the introduction of a shortage pricing function as mentioned in Article 44 (3) Regulation (EU) 2017/2195 is not planned. In their answer to the Commission questionnaire, the German authorities explain that the rejection in the implementation plan referred to any administrative component which would increase electricity prices on the wholesale market (which the Commission understands is meant to refer in this context to day-ahead and intraday markets) in scarcity situations. On the other hand, Germany regards an increase of the balancing energy price to be paid by balance responsible parties in certain scarcity situations as useful to incentivise balance responsible parties to maintain their portfolio in balance. Indeed, the scarcity component has been amended in May 2021, replacing a predefined adder by a function increasing the price further with balancing reserves getting scarcer.

Neither Article 44 (3) Regulation (EU) 2017/2195 nor Article 20(3)(c) Regulation (EU) 2019/943 provide a legal definition of the shortage pricing function. However, Article 44 (3) Regulation (EU) 2017/2195 sets out that “the additional settlement mechanism shall apply to balance responsible parties”. It is thus clear that this provision aims at increasing the cost to

be borne by balance responsible parties and thus not at administratively increasing prices on the day-ahead or intraday market (although heightened imbalance risks can indirectly have price effects on the other market segments). Thus, the Commission understands that Germany did in fact implement a function at least partially reflecting the intent of Article 44 (3) Regulation (EU) 2017/2195.

Effective scarcity pricing encourages market participants to react to market signals and to be available when the market most needs them. It also ensures that market participants recover their full costs in the electricity market. Therefore, in the Commission's view, it is important that the scarcity pricing mechanism is well designed. In this sense, it should not only provide incentives for short term flexibility but also send appropriate signals for investments to maintain system adequacy. In this context, the Commission invites Germany to consider whether the price adder on balancing energy which the referred function creates in times of scarcity should not only apply to balance responsible parties but also to balance service providers which provide balancing energy to the TSO. The Commission invites Germany to consider implementing this measure by 31 December 2022. If German authorities consider another date to be more appropriate, the Commission invites them to explain this in the amended implementation plan.

Furthermore, Article 44 (3) Regulation (EU) 2017/2195 also aims at providing for a mechanism to (partly or fully) recuperate the costs of procuring balancing capacity from those causing imbalances. The Commission thus invites German authorities to consider to what extent the current adder reflects the costs of procuring balancing capacity and, if most of those costs are not covered by the adder, whether additional increases to imbalance charges in scarcity situations would be appropriate.

The Commission invites Germany to further consider how competition in the balancing market, in particular in the market for balancing energy, could be improved. Limiting prices to maximum 9,999 €/MWh is both legally challenging in view of Article 10 Regulation (EU) 2019/943 and, if anything, further contributes to reduced incentives for participants to enter the balancing energy market. It therefore does not provide a solution to the underlying market problems on the balancing energy market and can thus, if at all, only be justified as a temporary damage limitation measure. Furthermore, in a European market for balancing energy, non-harmonised price limits result in inefficient outcomes. It is therefore of particular importance to remove market entry barriers to the balancing market, including for demand response and storage. The Commission invites Germany to propose concrete measures at national level and contribute to discussions on European level to address underlying challenges in the balancing energy market, notably as regards a lack of competition. The Commission asks Germany to include a concrete plan towards addressing these issues with a view to removing the lowered price limitation as soon as possible and no later than 31 December 2022, and to include this in the reporting on the implementation plan. If German authorities consider another date to be more appropriate, the Commission invites them to explain this in the amended implementation plan.

3. Demand side response

The Commission welcomes that demand side response is allowed to participate in all markets, including via aggregators. While it is understood that demand side response participation is only expected to increase when market signals show a sufficiently strong need for flexibility, the Commission wishes to highlight that, as also set out in the plan, the balancing energy markets have repeatedly shown high prices over several months. Nonetheless, it seems that no significant market entry by demand side response providers in the balancing energy market occurred. As – contrary to flexible generation – the participation of demand side response providers is also low on the intraday market, it appears difficult to explain this only by a higher attractiveness of the intraday market compared to the market for balancing energy.

The Commission thus invites German authorities to pay particular attention to the specific challenges faced by demand side response when analysing the lack of market entry in the balancing energy markets. This should include possible changes which may be required to prequalification requirements, where those are necessary to enable participation of demand side response, of course ensuring full respect of operational security needs.

The Commission also asks German authorities to analyse in their plan to what extent the existing provisions on reduced network charges set out in section 19 StromNEV create counter-incentives to the participation of commercial and industrial load in demand side response services. Indeed, as recognised in the plan, the significant rebates appear to rather incentivise market participants to adjust their load profiles in line with the requirements of section 19 StromNEV instead of providing flexibility services to the market. This effect has also been underlined by participants to the consultation. Following the judgment of the European Court of Justice of 2 September, the German framework for network tariffs needs to be revisited by competent national regulatory authority.¹⁶ As part of this review, the Commission invites the German authority competent for network tariff issues to analyse whether such rebates are still justified in view of recent market developments.

In their answer to the Commission questionnaire, the German authorities underline that the reduction is supposed to reduce incentives for direct lines between power generation facilities and large industrial consumers. However, it should be noted that the role of baseload power generation facilities has, while still relevant, been considerably reduced during the energy transition. The soon completed nuclear phase-out and ongoing coal phase-out will further amplify this trend. While a specific tariff reduction for the consumption profiles set out in

¹⁶ The Commission notes in this respect that according to the judgment of the Court of Justice of 2 September 2021 in Case C-718/18 *Commission v Germany*, the fact that the methodology to determine network tariffs is currently to a large extent set out in the StromNEV adopted by the Federal Government in agreement with the Bundesrat, including its section 19, infringes on the exclusive powers granted to the national regulatory authority (in Germany the BNetzA) under Directive 2009/72/EC (now Directive (EU) 2019/944).

section 19 StromNEV may have been justified in the past¹⁷, there are good grounds to assume this may have changed in an electricity market driven less by inflexible baseload generation and more by variable renewable energies, flexible back-up generation, storage and demand response.

The Commission asks German authorities, taking due account of the distribution of competences on tariff setting under Directive (EU) 2019/944¹⁸ on common rules for the internal market for electricity, to include a concrete plan towards reviewing or removing the tariff rebates where those are no longer justified as soon as possible and no later than 31 December 2022, and to include this in the reporting on the implementation plan. If German authorities consider another date to be more appropriate, the Commission invites them to explain this in the amended implementation plan.

The Commission shares the position of Germany that cost-based redispatch appears generally unsuitable for incentivising the participation of demand side response, and possibly also storage. At the same time, the Commission recognises that for bidding zones which are marked by significant internal congestion, where this congestion is also sufficiently predictable, such as in Germany, market-based redispatch can result in inefficient incentives to market participants and also be prone to market abuse.

On one hand, this further underlines the need to alleviate predictable structural congestion inside a bidding zone. On the other hand, where this problem is expected to exist still for several years, such as in Germany, it is of particular importance that other solutions to integrate demand side response and storage into congestion management markets are found. The Commission therefore welcomes that Germany indicates in the plan that work on such solutions is ongoing, but invites Germany to present a clearer timeline and clarity on what type of solutions could be envisaged.

The Commission stresses that while Article 13 (3) Regulation (EU) 2019/943 allows to deviate from the requirement of market-based redispatching under certain conditions, this does not as such allow to deviate from the other requirements of Article 13 (1) of the Regulation, namely the need for redispatching to use “objective, transparent and non-discriminatory criteria” and “be open to all generation technologies, all energy storage and all demand response, including those located in other Member States unless technically not feasible”. Finding appropriate solutions to integrate storage and demand side response also in practice is thus of particular urgency.

The Commission takes good note of the selective smart metering rollout that Germany is currently pursuing, involving 2.1 million metering sites or just 5% of the total consumption points (households, business customers, industrial users). While appreciating that this decision

¹⁷ In so far as German authorities argue that the concept of the physical path had been approved in state aid procedures, it should be noted that the Commission Decision (EU) 2019/56 related to the period 2012-2013 and the market conditions prevalent in this period.

¹⁸ Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity, OJ L 158 of 14 June 2019, p. 125.

for a limited deployment was taken following a cost-benefit analysis, the Commission considers the approach rather conservative, particularly bearing in mind other much more ambitious national rollouts in EU Member States with a comparable setting, and that smart meters *“help to further the digitalisation of the energy transition”* as acknowledged in the plan.

The Commission would therefore invite Germany to incorporate in the plan a timely revision of their cost-benefit assessment, in line with Article 19 of Directive (EU) 2019/944, to explore favourable conditions that might have arisen in the mean time for a wider scale rollout, while taking into consideration possible changes in original assumptions, and responding to technological and market developments. This would tie well with the national strategy for smart grid pursuits that intend to use smart meters as *“a central element of the smart energy system and to serve as a platform for a large number of services and added value in the fields of smart metering/sub-metering, smart grid, smart mobility, smart home/smart building and smart services”*.

The Commission acknowledges the swift reaction of the German authorities to table specific measures in response to the latest developments triggered by the Higher Court decision that challenged the rollout rules. However, given that detailed information on these rectifying measures has not been communicated to the Commission by the national authorities, the Commission cannot analyse them, nor frame an opinion regarding their appropriateness and effectiveness.

Accordingly, the national authorities are asked to carefully analyse, as more field data becomes available, whether these rectifying measures are fit-for-purpose and could effectively bridge the gaps identified in the national practice by the Higher Court, deliver the required functionality/interoperability within the metering and grid environment, and appropriately respond to the concerns expressed.

In addition, the Commission invites Germany to reflect in the plan on the extent that this situation has affected the overall deployment programme including acceptance rates, quality of investment and delivery of services. This reflection should also consider potential further measures, or refinements to the existing programme, that might be required as the rollout unfolds, in order to accelerate progress, ensure the appropriate level of rollout coverage in response to system and market requirements, and ensure reliability, legal certainty and robustness of the operation.

This reflection becomes even more pressing given that smart meters are a *“technical prerequisite for any incentives to load adjustment”*, and support dynamic pricing contracts, offers for which are currently limited in Germany, as the plan denotes, while *“the current status of the roll-out does not permit any predictions about the development of dynamic pricing”*. Germany is therefore invited to pay particular attention to this specific challenge, and to finding appropriate solutions to promote demand response schemes that can deliver benefits to consumers and the energy system as a whole.

In addition, while the Commission appreciates the efforts to implement provisions on dynamic pricing, it is important at the same time to inform consumers about opportunities, costs and risks of such dynamic electricity price contracts.

4. Retail markets: regulated prices

The Commission welcomes that no regulated prices are applied in Germany.

5. Interconnection and congestion management

The Commission welcomes the considerable efforts – both financially and administratively – made by Germany to speed up infrastructure expansion recognising its importance for the European electricity market. The Commission also welcomes that Germany and its neighbours plan considerable expansions of interconnection capacity over the coming years, which includes several projects of common interest. The Commission recognizes that ensuring network expansion in line with the expansion of renewable energies remains a major challenge and will require considerable further efforts. The Commission welcomes efforts to adjust national planning legislation to speed up procedures for the required network expansion and invites Germany to investigate additional measures to accelerate implementation. The Commission also supports efforts to increase available capacity without building new lines, e.g. by systematic use of dynamic line rating.

It is also welcome that congestion management of different energy sources will be integrated in one common process as of 1 October this year. Indeed, using different congestion management process for different generation technologies could result in inefficiencies and discriminatory outcomes. Equally, initiatives to incentivise transmission and distribution system operators to reduce downward redispatching are welcome. It should however be noted that Article 13 (5) b) Regulation (EU) 2019/943 contains a legal obligation for transmission and distribution system operators to take appropriate grid and market-related measures to minimise the downward redispatching of electricity produced from renewable energy sources or from high-efficiency cogeneration. Even where no incentives exist yet in the tariff framework, e.g. for distribution system operators, this legal obligation is directly applicable to all system operators since 1 January 2020.

The Commission would like to highlight that the structural congestion inside Germany also puts significant strain on the functioning of the European electricity market. This is the case physically (as loop flows reduce available capacities for trade also in neighbouring Member States) but also administratively (as the significant structural congestion frequently requires specific solutions in legislation or methodologies) as well as for market functioning (as those specific solutions can increase market complexity considerably). It is therefore of crucial importance that the efforts to reduce this congestion inside Germany are maintained or accelerated. The Commission notes that significant delays have occurred in the past as regards infrastructure expansion projects, including in Germany, and that infrastructure needs could also raise beyond expected levels in view of changes to the demand and supply situation such

as faster ramp-up of offshore wind generation or the construction of electrolyzers in the south. Against this background, the Commission invites German authorities to consider fall-back solutions (including but not limited to the measures discussed below) should network upgrades not proceed as planned or should the executed network upgrades not be sufficient to meet demand. The Commission highlights that, should significant delays occur, fall-back measures would need to be rapidly implemented in order to meet the linear trajectory and the 70 % requirement under Regulation (EU) 2019/943.

Contrary to what is claimed in the plan, the use of redispatching to address internal congestion inside a bidding zone appears to have a price impact. In fact, the plan itself highlights that uniform wholesale prices in Germany (which are the result of the single bidding zone) ‘*ensure that the electricity mix is dominated by the most cost-efficient generation technologies irrespective of the exact location within Germany where the electricity is generated. Since the installations with the lowest deployment costs are used at supra-regional level, the variable costs of the overall system decrease. The uniform German-Luxembourg bidding zone helps to reduce the overall demand for generation capacity, demand-side management and storage, thereby lowering investment and maintenance costs for the overall system as well*’¹⁹. By stating that ‘the variable costs of the overall system decrease’, the plan recognizes that the single bidding zone reduces wholesale electricity prices. By arguing that the demand for generation capacity decreases, the plan directly recognizes that this can result in reduced investment incentives.

Indeed, by having power plants setting the price which, thereafter, are not actually producing power, the marginal price in the market decreases. It should be noted that there is no contrary effect of including demand which cannot actually be realised, as all demand is finally met (where necessary by use of out-of-market measures such as redispatch). Thus, a larger offer meets the same demand, which, in total²⁰, would appear to result in lower marginal prices on the wholesale market. It is important to underline that this does not result in overall reductions to the costs of the electricity system. To the contrary, any reduction in electricity wholesale costs would appear to be more than compensated for by increased costs for redispatching and different types of reserves. These costs are however socialised (notably via network tariffs) and do not result in investment signals to generators, storage, or providers of demand response.

German authorities have correctly pointed out to the Commission services that redispatch volumes still represent a rather small part of total market volume, and it is thus unclear how big this effect on market prices would be, and if it is possibly negligible. A first step could thus be to determine the actual impact of congestion management on wholesale prices.

¹⁹ Emphasis added by the Commission.

²⁰ German authorities are correct to point out that in the presumably (on average) cheaper northern zone, reflecting the congestion in the prices would result in lowered prices, whereas in the south it would result in higher prices. The argument here is however that *as an absolute sum* the market income from power generation appears, at first sight, to be reduced in a larger zone compared to smaller zones.

In their answer to the Commission questionnaire, the German authorities have clarified that the above statement was related to the effects of a single bidding zone *in which network expansion also physically enables the trades to be realised*. This is however putting the reasoning on its head – essentially it argues that as a *congestion-free* large bidding zone would require less generation capacity, it is good to maintain a single bidding zone *also with large internal congestion*. This is not convincing. Similarly, the follow-up reasoning that network expansion inside Germany is the direct consequence of the single bidding zone is not entirely convincing. While it can possibly be correct that the need to address internal congestion provides an incentive to expand network capacity, the significant new interconnection projects with Germany’s neighbours clearly show that economic, legal and political incentives for network expansion between different bidding zones can also be considerable.

It is important to stress that this reasoning does not put into question the legality of the single Germany-Luxembourg bidding zone. Indeed, the aim of the implementation plan is not simply to ensure that *illegal* national measures which result in market distortions are removed²¹, but also to analyse possibilities to remove or reduce *legal* distortions. Thus, when discussing the need for introducing capacity mechanisms such as the strategic reserve, it is important to consider whether and to what extent the single bidding zone contributes to the adequacy concern by reducing incentives to invest in generation, storage or demand response, and whether this impact could be reduced or removed.

The Commission thus invites the German authorities to analyse this impact further and consider whether mitigating measures could be implemented which, while maintaining the single bidding zone if so chosen, reduce the impact on price formation. A non-exhaustive list of measures which could merit further consideration includes e.g.:

- Changes to the bidding zone (e.g. splitting the zone into two or several smaller zones);
- Changes to the bidding zone, but only on the offer and not on the demand side (as is the case in Italy, where producers sell in a number of different bidding zones, but demand is supplied based on a single national price); Ideally large consumption sites or at least new energy intensive investments, such as new electrolysis installations, should nonetheless receive locational signals; This would, as the first measure, also result in optimized market signals for cross-border dispatch, significantly reducing the need for complex cross-border redispatch.
- Network tariffs for generators reflecting the contribution to congestion costs, noting the limitations under Commission Regulation (EU) 838/2010 on laying down guidelines relating to the inter-transmission system operator

²¹ In fact, this aim could be achieved already via infringement procedures pursuant to Article 258 TFEU.

compensation mechanism and a common regulatory approach to transmission charging²²

- Differentiated connection charges for generation and/or load reflecting the congestion costs;
- Changes to congestion management, to incentivize participation of demand and storage, ideally on a market basis;
- Exclusion from the market result of power plants which with a very high likelihood would be subject to downward redispatching after market closure. On this last point, the BMWi had commented in its email of 14 July 2021 that this would result in further deviation between the zonal market price (which would increase) and the theoretical price in a northern zone, and thus be counterproductive as it could lead to deferred mothballing (or new investments) in northern Germany. While this reasoning appears to be correct for northern Germany, the contrary applies for southern Germany, where such an outcome (deferred mothballing or new investments) would appear welcome. Such a measure could thus possibly contribute to addressing both the adequacy concern and some of the issues addressed by locational measures such as the network reserve. Nonetheless, it also would bring additional complexities and market interventions and would thus, as the other measures above, require further reflection.

It is important to note that the above is not meant to impose or bless a single measure, but rather to highlight the need for further analysis of this matter and, where the concern is confirmed and if it is quantified as high enough to be of relevance, to reflect upon and implement adequate countermeasures. Several of these measures are already mentioned as possible avenues for reflection in the plan. However, the plan does not provide any timeline for these reflections. The Commission therefore invites Germany to add specific timelines and concrete next steps in this regard in the final plan.

The Commission recognises that investments will only occur based on longer-lasting signals. The question whether the internal congestion is expected to be drastically reduced in the near future is thus an important element of this discussion. It should however be noted that, as expressly recognized in the answer to the Commission questionnaire, the aim of the network development plan is not to achieve a fully congestion-free network (which would be inefficient). Thus, should a certain degree of congestion, even if significantly reduced, be expected also in the longer term, certain measures could be worthwhile to consider even if the network development plan is implemented on time and reduces congestion as planned.

Furthermore, the Commission stresses that bidding zones without significant internal constraints considerably contribute to efficient dispatch of power plants and demand response.

²² Commission Regulation (EU) 838/2010 on laying down guidelines relating to the inter-transmission system operator compensation mechanism and a common regulatory approach to transmission charging, OJ L 250 of 24 September 2010, p. 5.

This can also result in reduced carbon emissions, as the generation facilities with lower marginal costs frequently emit less carbon dioxide. In particular, where cross-border redispatch is still regarded as functioning suboptimally, it should be noted that in bidding zones free of significant internal congestion, initial dispatch already makes optimal use of cross-border capacity, without the need for subsequent massive cross-border redispatch.

It is important to recognise that many improvements as regards congestion management will need to be implemented on a regional or European level. By way of example, where internal congestions are going to be resolved by means of redispatch, this is currently not fully reflected in the algorithms calculating capacity for trade, which consider the relevant line as congested, thereby reducing available capacity. Improvements in information exchange and inclusion of the best available data, possibly including expected redispatch, in capacity calculation could be avenues for improvement. The Commission calls upon Germany to further support these discussions, also with a view to improve the efficiency of congestion management measures elsewhere in the Union.

It should also be noted that several national measures contain locational elements. In their answer to the Commission questionnaire, German authorities distinguish two types of measures:

- A first group of measures with locational elements for which Germany argues that those measures have no impact on investment or dispatch signals. Germany argues this includes the following measures:
 - the network reserve;
 - the ‘besondere netztechnische Betriebsmittel’ pursuant to paragraph 11 (3) EnWG (as applicable until 27 July 2021);
 - the capacity reserve;
 - and the coal exit legislation.

Germany sets out that the capacity reserve has no locational elements. For the other measures, German authorities argue that, as the resources included in these measures were held outside the electricity market, they had no impact on dispatch- or investment signals. While it is certainly correct that these reserves are only activated once all available market-based measures have been exhausted, they do have an impact, albeit more limited and less direct, on the functioning of the market (e.g. by reducing the procurement of reserves or reducing the need to agree on frameworks for cross-border redispatch²³).

- A second group of measures (in part still subject to state aid approval) includes those where the German authorities recognise that they impact investment- and

²³ Participants to the consultation have pointed out that in their view, sometimes the network reserve was used when cross-border reserves would have been available. German authorities have argued that this is incorrect. However, they recognise that cross-border redispatch can currently only function where there are bilateral agreements between German system operators and neighbouring system operators. It would appear plausible that such agreements could have been treated with higher urgency if no such reserve had been available.

dispatch decisions. This includes the renewable support schemes and to a limited extent the combined heat and power support.

For these measures, there is no dispute as to their impact on investment signals. Indeed, the whole purpose of those elements is to impact the location of investments. While the aim (e.g. distributing investments in renewable energies more widely across Germany, thereby amongst others easing the network situation) is understandable, it is not clear why this aim should be pursued only as regards very specific types of investments (e.g. new onshore wind) but not for other types of investments which also contribute (or not) to the congestion issue.

As pointed out by German authorities, the significant efforts to reduce internal congestion by network expansion are vital to address this issue. However, as recognised by including locational elements in some measures, it does not appear optimal from a societal welfare perspective (if at all feasible) to realize generation investments completely independent of the network situation. Globally, these measures also appear to disincentivise demand response in the south (where supply is often scarce and prices might need to be higher to provide efficient demand response signals) and enable the prolongation of whole bidding zone electricity prices that in many hours do not accurately represent the balance of supply and demand in the north or the south, distorting electricity import and export signals on all German borders and benefitting customers in southern Germany at the expense of those in northern Germany. The Commission thus strongly encourages Germany to reconsider whether applying some individual measures with locational components and others without such components is really preferable to having one central locational signal, be it via bidding zones or other means. In particular, locational components in individual measures can reduce competition regarding the individual measure (e.g. if tenders are limited to specific areas), possibly also reducing renewable investments in total if tenders are undersubscribed in consequence, and can shift the burden of managing the congestion only on parts of the market participants. It also means that for many market participants, there is no locational signal whatsoever (e.g. new investments in gas-fired generation, new storage investments, large new energy-intensive demands such as electrolyzers...), which can have significant detrimental impact as regards the objective of reducing the congestion in the longer term. Consequently, Germany might have to look for remedial measures to counter the negative effects of individual locational measures distorting competition. On the other hand, having one central locational signal, be it via wholesale prices, network charges, connection charges or other means, could provide a more coherent and reliable signal, and would allow to reduce complexity of other measures. The Commission welcomes that German authorities declare to be looking into a number of such measures and strongly encourages further reflections in this direction.

6. Capacity mechanism

The Commission invites Germany to make sure that the design of its capacity mechanism complies with the requirements of Regulation (EU) 2019/943 and adapt its mechanism, where necessary, as required by Article 22(5) of the Regulation.

The Commission would like to highlight that Article 21 (4) of Regulation (EU) 2019/943 sets out that Member States shall not introduce capacity mechanisms where both the European

resource adequacy assessment and the national resource adequacy assessment, or in the absence of a national resource adequacy assessment, the European resource adequacy assessment have not identified a resource adequacy concern. The plan as notified sets out that “Germany has in principle no concerns about resource adequacy in the German electricity market”. Germany has explained in its answer to the Commission questionnaire that this statement refers to commonly occurring demand and supply situations. Germany argues that the national and European adequacy assessment targeted such commonly occurring market situations, including cold winters and hot summers, but did not cover extreme situations. The capacity reserve targeted, according to the German authorities, such extreme situations, based on a reasonable worst case scenario that is still under analysis.

While it appears plausible to accept more remote adequacy concerns as justifications for smaller mechanisms which have less market impact, the Regulation is clear that *without an adequacy concern, no capacity mechanism is allowed*. The Commission therefore strongly invites the German authorities to ensure that any capacity mechanism is only introduced and any contract only concluded on the basis of objective criteria following a resource adequacy assessment as set out in Article 21 (6) of Regulation (EU) 2019/943.

The Commission invites Germany to update its resource adequacy assessment following the requirements of the ACER methodology of 2 October 2020 for the European resource adequacy assessment. The Commission welcomes that the German authorities are working together with Luxembourg towards introduction of reliability standard and a value of lost load. The Commission invites the authorities of Germany and Luxembourg to follow the respective ACER methodologies for cost of new entry, value of lost load and on reliability standards. The Commission reminds that the sizing of any reserve needs to be directly related to the identified adequacy concern and reliability standard.

IV. CONCLUSION

Pursuant to Article 20(5) of Regulation (EU) 2019/943, the Commission invites Germany to amend its implementation plan to take utmost account of the above comments of the Commission. Germany is invited to publish its amended plan within three months and inform the Commission.

Pursuant to Article 20(6) of Regulation (EU) 2019/943, Germany shall monitor the application of their implementation plan and shall publish the results of the monitoring in an annual report and submit that report to the Commission. In this report, Germany is invited to explain whether and to what extent the market reforms have been implemented according to the planned timeline, and if not explain the reasons why.

The Commission's position on this particular notification is without prejudice to any position it may take on the compatibility of any national implementing measure with EU law.

The Commission will publish this document on its website. The Commission does not consider the information contained therein to be confidential. Germany is invited to inform the Commission within ten working days following receipt whether and why they consider

that, in accordance with EU and national rules on business confidentiality, this document contains confidential information which they wish to have deleted prior to such publication.

Done at Brussels, 18.10.2021

For the Commission
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