

**OPINION No 02/2024**  
**OF THE EUROPEAN UNION AGENCY**  
**FOR THE COOPERATION OF ENERGY REGULATORS**

**of 10 April 2024**

**on the necessary developments for the fulfilment of the minimum cross-zonal capacity requirements**

THE EUROPEAN UNION AGENCY FOR THE COOPERATION OF ENERGY REGULATORS,

Having regard to Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators<sup>1</sup>, and, in particular, Article 15(3) thereof,

Having regard to Regulation (EU) 2019/943 on the internal market for electricity<sup>2</sup>, and, in particular, Article 16(8) thereof,

Whereas:

**1. INTRODUCTION**

- (1) As the EU strives to meet the ambitious renewable energy targets and address the challenges of climate change, the efficient exchange of electricity across borders plays a pivotal role in fostering an integrated and resilient internal electricity market. Maximising the possibilities to exchange energy between Member States enhances the resilience of the overall power system, ensures the optimal use of generation assets and facilitates the penetration of renewable energy. A fully functioning internal electricity market, where electricity can be freely exchanged across borders, is of key importance to the EU's decarbonisation efforts.
- (2) The development and implementation of rules for the calculation and allocation of cross-zonal capacities has been an integral step for the completion of the internal electricity market. The primary objective of these rules is an efficient management of

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<sup>1</sup> OJ L158, 14.6.2019, p. 22.

<sup>2</sup> OJ L 158, 14.6.2019, p.54

congestions (i.e., situations in which all requests from market participants to trade between network areas cannot be accommodated as they would significantly affect the physical congestions in the grid), so as to maximize the access to cross-zonal trade and thus allow for efficient market functioning.

- (3) Over the last decade, significant progress has been achieved in the area of capacity allocation, in particular through the development and introduction of market coupling. Market coupling ensures that the available cross-zonal capacities, as calculated by transmission system operators ('TSOs'), are used in the most efficient manner. In the area of coordinated capacity calculation, however, progress has been much slower.
- (4) The electricity market in the European Union is structured into bidding zones, where the impact of electricity trade between market participants within each bidding zone on physical congestions is ignored, even though it may not be negligible, and thus trade within zones is unlimited. In contrast, the trade between bidding zones is limited by a predefined set of values of cross-zonal transmission capacity reflecting physical congestions in the grid.
- (5) Following this model, requests for internal exchanges get unlimited and prioritised access to the scarce network capacity, whereas requests for cross-zonal exchanges can only access the portion of that capacity which is not already used by internal exchanges. Under the historic bidding zone configuration in the EU, where bidding zones reflect national borders and not necessarily the physical reality of the power grid, this approach constitutes a significant barrier for the integration and the efficient functioning of the internal electricity market. Moreover, it discriminates between network users in different parts of the network, with some users accessing the scarce capacity of the network for free and without limitations, while others having to compete for an *ex-ante* limited amount of capacity. This comes at the expense of end-consumers, who cannot reap the benefits of a fully integrated electricity market.
- (6) The principles of maximization of cross-zonal capacities and non-discrimination between internal and cross-zonal trade have long been enshrined in the European legal and regulatory framework for electricity<sup>3</sup>, as they stem directly from the fundamental freedoms of the Treaty on the Functioning of the European Union. However, the lack of progress towards upholding these two core principles led to the introduction of a concrete and measurable minimum level of available capacity for cross-zonal trade in the 'Clean energy for all Europeans' legislative package.<sup>4</sup>
- (7) Article 16(8) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (hereafter referred to as

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<sup>3</sup> See Article 16 and Point 1.7 of Annex I of Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003, OJ L 211, 14.8.2009, p. 15.

<sup>4</sup> See recital (27) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast).

the ‘Electricity Regulation’) requires TSOs, without prejudice to operational security limits, not to limit the volume of interconnection capacity to be made available to market participants as a means of solving congestion inside their own bidding zone or to manage flows resulting from transactions internal to bidding zones. TSOs are considered compliant with this requirement of the Electricity Regulation if they make available for cross-zonal trade at least 70% of the physical capacity of internal and cross-zonal critical network elements considering contingencies (‘CNECs’).

- (8) This minimum threshold introduced in the Electricity Regulation (hereinafter referred to as the ‘minimum 70% requirement’), which aims at mitigating the discrimination of cross-zonal trades in favour of domestic trades, has become a key tool in the progress of EU electricity market integration, as it incentivises the optimal use of the available network assets. Article 16(8) of the Electricity Regulation further specifies that the remaining maximum amount of 30% can account for reliability margins, loop flows and internal flows on each critical network element with contingency.
- (9) To allow for Member States to implement this provision without endangering system security, a process was agreed upon during the negotiations of the ‘Clean energy for all Europeans’ package<sup>5</sup>, whereby the relevant stakeholders were to cooperate to identify structural congestions within and between bidding zones and assess potential bidding zone reconfigurations. To support this process, Article 15 of the Electricity Regulation allows Member States to establish action plans to ensure the gradual fulfilment of the minimum 70% requirement, up until the end of 2025, in parallel to the implementation of structural measures to cope with the identified structural congestion.
- (10) In the meantime, where necessary for maintaining operational security, the relevant regulatory authorities may, at the request of the TSOs in a capacity calculation region (‘CCR’), grant a derogation from the minimum 70% requirement pursuant to the first subparagraph of Article 16(9) of the Electricity Regulation to the extent necessary to ensure operational security, relaxing the requirements under Article 16(8) of the Electricity Regulation for a limited period.
- (11) Moreover, as a measure of last resort, TSOs have the possibility, in accordance with Article 16(3) of the Electricity Regulation, to deviate from the minimum cross-zonal capacity requirements (which correspond to either the 70% or the interim national targets stemming from the applicable derogations and/or action plan, if any), in cases where such levels of capacity would result in a violation of the operational security limits defined by each TSO in accordance with the system operation guideline adopted on the basis of Article 18(5) of Regulation (EC) No 714/2009<sup>6</sup>.

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<sup>5</sup> The revised Electricity Regulation is part of this ‘Clean energy for all Europeans’ legislative package.

<sup>6</sup> See Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation.

- (12) In accordance with Article 15 of Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators (hereafter referred to as the ‘ACER Regulation’), ACER is tasked with monitoring potential barriers to cross-border trade, and to report on any identified barrier to the completion of the internal markets for electricity and natural gas.
- (13) The limited levels of cross-zonal capacities made available, which the minimum 70% requirement aimed to address, have long been a barrier to the further integration of EU electricity markets, making them a primary focus of ACER’s monitoring efforts. However, the specific strategy with regards the implementation of the minimum 70% requirement is of national discretion, and the assessment of TSO compliance with the minimum requirements remains, therefore, the responsibility of the national regulatory authorities.
- (14) ACER’s monitoring activities on the evolution of cross-zonal capacities over the last years have shown that a large share of EU TSOs are still far from fulfilling the minimum 70% requirement<sup>7</sup>, and that significant barriers to the maximization of cross-zonal capacities persist. Therefore, in accordance with Article 15(3) of the ACER Regulation, ACER issues this Opinion to the European Parliament and to the European Commission, aiming to outline the causes, effects and necessary developments required to remove such barriers.

## **2. PROCEDURE**

- (15) On 21 July 2023, ACER published its yearly edition of the market monitoring report on cross-zonal capacities and the minimum 70% margin available for cross-zonal trade (‘MACZT’, which measures the share of the physical capacity of a network element that is made available to the market for cross-zonal trade), which reported on the monitoring analysis for 2022. This report aimed to highlight the importance of maximising the margin available for cross-zonal trade in the context of the 2022 energy crisis, to assess the usage of network elements with regard to the minimum cross-zonal capacity requirements, and to identify potential barriers to cross-zonal trade.
- (16) On 21 July 2023, ACER published a notice inviting interested stakeholders to submit observations on the insights presented in the market monitoring report on cross-zonal capacities and the minimum 70% MACZT by 22 September 2023<sup>8</sup> via a public consultation. ACER received 31 observations representing a broad range of stakeholders, including TSOs, energy traders, energy producers, industry associations

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<sup>7</sup> See section 2.2.1 of the 2023 edition of the market monitoring report on cross-zonal capacities and the 70% margin available for cross-zonal trade (MACZT), which can be accessed using the following link: [https://www.acer.europa.eu/sites/default/files/documents/Publications/2023\\_MMR\\_MACZT\\_0.pdf](https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_MACZT_0.pdf)

<sup>8</sup> The deadline was extended by one week to allow for all stakeholders to respond.

and regulatory authorities. An overview of the observations received, as well as the response from ACER, were relevant, is presented in Annex I of this Opinion.

- (17) ACER held a public webinar on 6 September 2023, where it presented the main conclusions of the market monitoring report on cross-zonal capacities and the minimum 70% MACZT, addressed the questions of the audience, and discussed the topic with selected panellists.
- (18) On 3 November 2023, ACER published its market monitoring report on the progress of EU electricity wholesale market integration.<sup>9</sup> This report evaluated the functioning of the EU's internal electricity market in 2022 by assessing, among other indicators, the use of remedial actions by EU TSOs in grid congestion management.
- (19) The draft Opinion was shared with ACER's Capacity Calculation and Congestion Management task force ('CACM TF') and ACER's Electricity Working Group ('AEWG'), where national regulatory authorities were invited to provide their views on the draft in two commenting rounds. Three regulatory authorities, the Bundesnetzagentur ('BNetzA'), the Commission de Régulation de l'Énergie ('CRE') and the Autorità di Regolazione per Energia, Reti e Ambiente ('ARERA'), submitted written views during the commenting phases. Both CRE and ARERA emphasized the need to further highlight the costs of fulfilling the minimum 70% requirement, via the use of remedial actions and grid expansion, while BNetzA argued that sufficient progress is being made in the implementation of the requirement and does not share the need to issue the present Opinion.
- (20) On 7 March 2024, the Opinion was discussed at the 122<sup>nd</sup> ACER Board of Regulators meeting, and it was informally endorsed by the Board of Regulators through electronic procedure on 11 March 2024.

### **3. ACER'S ASSESSMENT**

- (21) Limited levels of transmission capacity made available for cross-zonal trade hamper the process of electricity market integration in the EU.<sup>10</sup> This, in turn, represents a barrier to the transition of the EU power system towards net-zero and a detriment to the European consumer. By way of an example, the expected 300 GW of offshore wind to be installed in the EU by 2050 will require an integrated market with sufficient capacity to reach the demand centres across the whole EU. The fulfilment of the minimum 70% requirement in an efficient and structural way, minimizing the need

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<sup>9</sup> The 2023 edition of the market monitoring report on the progress of EU electricity wholesale market integration can be accessed using the following link: [https://www.acer.europa.eu/sites/default/files/documents/Publications/2023\\_MMR\\_Market\\_Integration.pdf](https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_Market_Integration.pdf)

<sup>10</sup> See recital (27) of the Electricity Regulation, '*Uncoordinated curtailments of interconnector capacities increasingly limit the exchange of electricity between Member States and have become a serious obstacle to the development of a functioning internal market for electricity.*'

for curtailment of renewable energy<sup>11</sup>, will contribute to tackling the need for cross-zonal capacities in the EU's path towards decarbonization. Moreover, it contributes to addressing the discrimination of cross-zonal trade in favour of internal trade, inherent to the EU's market design.

- (22) ACER's monitoring on the implementation of the minimum 70% requirement over the last years has shown uneven progress since the introduction of this provision. Concretely, the 2023 market monitoring report on cross-zonal capacities and the 70% margin available for cross-zonal trade showed that the TSOs corresponding to the more meshed areas of the EU power grid, albeit with some exceptions, are still far from being able to guarantee the 70% of MACZT in most hours of the year, and highlighted that significant limitations to the progress towards fulfilling the requirement and, more generally, the maximization of cross-zonal capacities, persist.
- (23) The implementation of regional coordinated capacity calculation methodologies, stemming from the Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion management (hereafter the 'CACM Regulation'), is a prerequisite for guaranteeing the minimum cross-zonal capacity requirements in a structural and operationally secure manner. The implementation of these methodologies, however, have been delayed across several capacity calculation regions ('CCRs'), including both the Core and Nordic CCRs. This has led to, in some cases, TSOs falling short from the fulfilment of the minimum cross-zonal capacity requirements, or the impossibility to fully monitor the fulfilment of such requirements in others<sup>12</sup>.
- (24) Moreover, electricity flows within bidding zones induced by transactions within other bidding zones (i.e., loop flows) remain significant. These 'free-riding flows' can use up a high share of the physical capacity of certain network elements, without bearing the costs for their usage, making them partially inaccessible to cross-zonal trade, and thus hindering the possibilities of the most affected TSOs to fulfil the minimum 70% requirement. Additionally, the increasing level of penetration of renewable energy sources into the system could further exacerbate this phenomenon in the coming years, as the volumes of trade necessary to transport the renewable energy output to the demand centres will increase vastly. A solution to the problem is thus urgent. The methodologies for the forecast, activation, and cost-sharing of remedial actions across TSOs' control areas, as well as and targeted grid developments, would allow to partly mitigate the impact of loop flows. However, the above-mentioned methodologies have not been implemented to this date and the large-scale targeted grid developments that would be necessary are not expected in the short term.

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<sup>11</sup> See Article 13(5) of the Electricity Regulation.

<sup>12</sup> See sections 2.2.2 and Table 4, respectively, of the 2023 edition of the market monitoring report on cross-zonal capacities and the 70% margin available for cross-zonal trade (MACZT): [https://www.acer.europa.eu/sites/default/files/documents/Publications/2023\\_MMR\\_MACZT\\_0.pdf](https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_MACZT_0.pdf)

- (25) Based on the information currently available, ACER sees significant difficulties in achieving the structural and efficient fulfilment of the minimum 70% requirement across the whole EU by 2026, which would in turn jeopardise the ambitious targets set for renewable energy integration. In the following subsections of this Opinion, ACER aims to address some of the main elements that lead to such an outlook, and to highlight the necessary developments that would enable the fulfilment of the minimum 70% requirement within the timeline defined in the Electricity Regulation. As such developments may require political acceptance, ACER considers of key importance to raise awareness for the issue and the potential solutions.

3.1.1. No (near) end in sight for derogations from the minimum 70% requirement

- (26) Pursuant to the first subparagraph of Article 16(9) of the Electricity Regulation, at the request of the TSOs in a CCR, the relevant regulatory authorities may grant a derogation from the minimum 70% requirement on foreseeable grounds where necessary for maintaining operational security, provided that no other regulatory authority of the affected CCR disagrees with the proposed derogation. Article 16(9) of the Electricity Regulation provides that:
- (a) the extent of a derogation shall be strictly limited to what is necessary to maintain operational security;
  - (b) a derogation shall not relate to the curtailment of capacities already allocated pursuant to Article 16(2) of the Electricity Regulation;
  - (c) a derogation shall be granted for no more than one-year at a time, or, provided that the extent of the derogation decreases significantly after the first year, up to a maximum of two years;
  - (d) a derogation shall avoid discrimination between internal and cross-zonal exchanges.
- (27) Such derogations, intended to facilitate the transition to the fulfilment of the minimum 70% requirement by 2026, allow for a temporary relaxation of the minimum 70% requirement to ensure that operational security is not compromised. Since the entry into force of the Electricity Regulation, a majority of EU TSOs have been granted derogations by their respective regulatory authorities on different grounds<sup>13</sup>. While the number of derogations applicable in the EU has been decreasing in recent years, these have limited the progress towards the maximization of cross-zonal capacities.
- (28) Through its monitoring efforts, ACER has detected that some of the currently applicable derogations can lead to either very low requirements of MACZT in certain

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<sup>13</sup> See ACER's overview and main characteristics of the derogation requested during period 2020-2023: [https://acer.europa.eu/sites/default/files/documents/Official\\_documents/Acts\\_of\\_the\\_Agency/Publications%20Annexes/ACER%20Report%20on%20the%20result%20of%20monitoring%20the%20MACZT%20Generic/ACER%20Report%20on%20the%20result%20of%20monitoring%20the%20MACZT%20Derogations.pdf](https://acer.europa.eu/sites/default/files/documents/Official_documents/Acts_of_the_Agency/Publications%20Annexes/ACER%20Report%20on%20the%20result%20of%20monitoring%20the%20MACZT%20Generic/ACER%20Report%20on%20the%20result%20of%20monitoring%20the%20MACZT%20Derogations.pdf)

conditions, or to no quantitative requirement at all. While some derogations establish a moving requirement, defined *ex-ante* based on the forecasted risk to operational security, a share of the granted derogations do not have a clear enforceable threshold defined for all market time units. Either they set no target, or this target only applies to a share of the hours.

- (29) ACER considers important that all derogations include, where possible, enforceable and concrete targets for all market time units, as this is the only way to guarantee that derogations are in fact strictly limited to what is necessary to maintain operational security. Failing to do so also implies that the condition not to discriminate between internal and cross-zonal exchanges cannot be guaranteed. Moreover, a floor of the margin made available for cross-zonal trade should be considered when defining the target, to guarantee that a minimum level of capacity is always made available.
- (30) Moreover, the progress in implementing the methodologies and processes that address the reasons behind derogation requests over the last years has been slow. ACER thus sees a risk that derogations will continue to be used well beyond 2025, and thus that they will effectively perpetuate low margins of cross-zonal capacity after that. This contradicts the intention of the legislator in the transitional nature<sup>14</sup> of derogations whereby, as of 1 January 2026, all identified structural congestion inside bidding zones should have been addressed, and thus 70% of margin available for cross-zonal trade should be reached in the entire EU by then.
- (31) A clear case of this risk are derogations that are granted to address the impact of significant loop flows originating in neighbouring bidding zones. In the Core CCR, several TSOs have requested derogations on a yearly basis since entry into force of the minimum 70% requirement due to the presence of loop flows above an acceptable threshold. These derogations have been granted under the assumption that, as the origin of the loop flows is outside the control area of a given TSOs, the local remedial action potential is insufficient to alleviate the impact of such flows.<sup>15</sup>
- (32) Although the finalization of the national action plans by the end of 2025 are expected to reduce the level of loop flows across the Core CCR, the general applicability of the 70% requirement after that is no guarantee that the negative effect of loop flows in neighbouring control areas is fully tackled. The implementation of processes to forecast, activate and share the cost of remedial actions across the TSOs of the region are necessary to address this issue, at least in the day-ahead timeframe, by reducing the detrimental effect of loop flows on the capacity levels made available to the market. The most relevant processes in that regard are the coordinated validation assessment within the capacity calculation, the regional operational security

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<sup>14</sup> See e.g. Recital (27) of the Electricity Regulation: “(...) Furthermore, in the case of foreseeable problems for ensuring grid security, derogations should be possible *for a limited transition phase*.”

<sup>15</sup> See, for example, the CREG’s Decision (B)2687 on the request of Elia System Operator SA for derogation from the minimum level of capacity to be made available for cross-zonal trade: <https://www.creg.be/sites/default/files/assets/Publications/Decisions/B2687FR.pdf>



coordination ('ROSC') and the redispatching and cost-sharing methodologies. The coordinated validation step will allow Core TSOs to assess the operational security of the calculated capacities with the forecast of all the remedial actions that would be available in the region. The redispatching and cost-sharing methodologies will then ensure that TSOs at the source of the loop flows will trigger, and bear the cost of, the necessary remedial actions to mitigate their impact.

- (33) Despite the legal deadlines for the implementation of these methodologies being set well before the end of 2025, the projected development timeline of the Core TSOs indicates that some of these processes will not be established by then. These delays further underline the concern that derogations to address the impact of loop flows from neighbouring bidding zones will continue to be requested beyond 2025, thereby hampering the progress towards meeting the minimum 70% requirement in the most affected Member States. In light of the aforementioned, implementation delays beyond the timeline provided in the Electricity Regulation for the fulfilment of the minimum 70% requirement should not warrant additional derogations.

3.1.2. Remedial actions may not always be a feasible nor a cost-efficient option to guarantee 70%

- (34) As clarified by recital 20 of the Electricity Regulation, where the coordinated capacity calculation performed at a regional level does not result in cross-zonal capacity equal to or above the minimum capacities set out in the Electricity Regulation, regional coordination centres ('RCCs') are tasked with considering all available costly and non-costly remedial actions to further increase capacity up to the minimum requirement, including redispatching potential within and between the CCRs, while respecting the operational security limits of the TSOs of the CCRs. The triggering of remedial actions by TSOs allows for a reduction in the flows of certain CNECs in such a way that the applicable minimum cross-zonal capacity can be offered to the market for cross-zonal trade.
- (35) ACER's market monitoring report on the progress of EU electricity wholesale market integration shows a significant increase in the costs of remedial actions incurred by TSOs in 2022 as compared to previous years. The total cost of remedial actions in 2022 totalled 5.2 billion EUR, which constitutes a 46% increase compared to 2021. This increase can be explained by the energy crisis and related price increases on the one hand, but also due to the constantly increasing volumes of costly remedial actions necessary to guarantee the minimum cross-zonal capacity requirements. Preliminary data on remedial actions for the year 2023 in Germany indicate that, even if the costs incurred may be lower than those of 2022 due to the generally lower electricity prices, the volumes of redispatching activated continue to increase steadily<sup>16</sup>. Furthermore,

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<sup>16</sup> See, for example, the data reported by Bundesnetzagentur on the volumes of redispatching activated in Germany during the first two quarters of 2023:

ACER's monitoring shows that a large share of the generation technologies involved in redispatching are fossil-based. Concretely, in 2022 a 66% of the reported redispatching volumes in the EU involved fossil-based generation, constituting a total of over 26 TWh.<sup>17</sup>

- (36) The surge of certain renewable energy sources in the power system, especially offshore wind, driven by the ambitious emission reduction targets set by the EU as well as individual Member States, will only exacerbate the need for activating remedial actions, and its costs, unless more structural measures are implemented swiftly. These are notably the development of grid infrastructure or the adjustment of the current bidding zone configuration. In absence of these structural measures, the surge of renewable energy penetration will bring an increased need for curtailment of renewable energies, at the expense of the use of more expensive and polluting generation technologies, which may risk squandering some of the efforts in the EU's emission reduction targets and increasing the energy bill for end-consumers.
- (37) Moreover, ACER has reported a significant number of cases where a lack of sufficient remedial actions prevented TSOs from securing the applicable minimum cross-zonal capacity requirement. ACER expects this effect to increase in the coming years, as the national transitory targets continue advancing towards 70%, and more renewable energy is integrated into the power system.
- (38) In the intraday timeframe, guaranteeing the minimum cross-zonal capacity requirements by relying solely on remedial actions poses a major challenge to TSOs. Closer to real time, the availability of remedial actions tends to decrease, as some of the assets currently used in congestion management are not flexible enough to be activated close to real time. While such technical complexity does not generally exempt trading in the intraday timeframe from complying with the non-discrimination principle and the obligations under Article 16(8) of the Electricity Regulation, structural solutions such as bidding zone reconfigurations or targeted grid reinforcements may be a pre-condition for the practical and consistent application of the principle in the intraday timeframe. With the increasing penetration of generation from variable renewable energy sources into the system, the importance of intraday markets is expected to be such that the maximisation of cross-zonal capacities offered in that timeframe should become a priority.
- (39) In case that TSOs are unable to fulfil the minimum 70% requirement by relying extensively on the use of remedial actions, more structural solutions need to be pursued. This can be done either by reinforcing the power grid development where internal congestion often occurs, or is foreseen to occur, or by adjusting the bidding

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[https://data.bundesnetzagentur.de/Bundesnetzagentur/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen\\_Institutionen/Versorgungssicherheit/Netzengpassmanagement/Q2-2023\\_Quartalsbericht-Netzengpassmanagement.pdf](https://data.bundesnetzagentur.de/Bundesnetzagentur/SharedDocs/Downloads/DE/Sachgebiete/Energie/Unternehmen_Institutionen/Versorgungssicherheit/Netzengpassmanagement/Q2-2023_Quartalsbericht-Netzengpassmanagement.pdf)

<sup>17</sup> See Chapter 3 of the market monitoring report on the progress of EU electricity wholesale market integration: [https://www.acer.europa.eu/sites/default/files/documents/Publications/2023\\_MMR\\_Market\\_Integration.pdf](https://www.acer.europa.eu/sites/default/files/documents/Publications/2023_MMR_Market_Integration.pdf)

zone configuration so that it better reflects the reality of the power grid, and in that way convert a share of the loop and internal flows into allocated flows.

- (40) The reconfiguration of the bidding zones in the EU is currently being assessed by means of a pan-European bidding zone review study, mandated by Article 14 of the Electricity Regulation. In that context, ACER Decision No 11/2022 of 8 August 2022 on the alternative bidding zone configurations to be considered in the bidding zone review process analysed the impact of a potential reconfiguration of bidding zones in the progress towards fulfilling the minimum 70% requirement. This assessment showed, inter alia, that some bidding zone configurations alternative to the current one could significantly reduce the levels of loop flows across Continental Europe.<sup>18</sup> Such a reduction would reduce the need to rely on costly remedial actions, and the corresponding costs incurred, to guarantee the minimum cross-zonal capacity requirements in the bidding zones most affected by loop flows.
- (41) However, both these alternatives are not without challenges, and both come with associated costs. The bidding zone review process has undergone several delays due to the modelling complexities and may not by itself ensure that the minimum cross-zonal capacity requirements can be met, while network developments are becoming increasingly complex due to permitting difficulties and public opposition. Therefore, it is important to conclude in a timely manner the on-going processes on a technical level, in order to then be able to engage with the relevant stakeholders and decision-makers at a political level.

### 3.1.3. Deviations from the minimum requirements may become more frequent

- (42) Besides the applicability of derogations, TSOs have the possibility, in accordance with Article 16(3) of the Electricity Regulation, to deviate from the legally binding minimum cross-zonal capacity requirements, as a measure of last resort, in those cases where such levels of capacity would result in a violation of the operational security limits defined by each TSO in accordance with the system operation guideline as currently established by Commission Regulation (EU) 2017/1485.
- (43) These deviations are designed within the regional coordinated capacity calculation processes, by allowing a reduction of the cross-zonal capacities calculated by the RCC, either unilaterally or in a coordinated manner, whenever a risk for operational security that cannot be resolved through remedial actions, is detected. Article 16(3) of the Electricity Regulation states that if ACER concludes that the prerequisites for such a deviation are not fulfilled or are of a structural nature, ACER shall submit an opinion to the relevant regulatory authorities and to the Commission.

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<sup>18</sup> See Tables 4 and 5 of ACER Decision No 11/2022 of 8 August 2022 on the alternative bidding zone configurations to be considered for the bidding zone review process: <https://www.acer.europa.eu/sites/default/files/documents/Individual%20Decisions/ACER%20Decision%2011-2022%20on%20alternative%20BZ%20configurations.pdf>

- (44) A summary of all deviations needs to be provided to ACER by the relevant RCC in the form of quarterly reports. Under the current conditions, ACER cannot yet conclude whether the prerequisites for such deviations are met in each individual case, as not all necessary elements to assess the potential threat to operational security, such as the remedial actions considered in the analysis, are made available to ACER. It is therefore crucial that the existing information gaps are closed as soon as possible by ensuring transparency with ACER and NRAs on both the local and coordinated validation processes. However, on the basis of the information available, ACER considers that some of these cases may not be justifiable on grounds of operational security, namely in case of the following situations.
- (45) Firstly, the consideration of all possible available remedial actions, both costly and non-costly, is a prerequisite when assessing the need for a deviation from the capacity requirements. This stems from Article 16(4) of the Electricity Regulation, which provides that costly remedial actions are to be used to reach the minimum capacity requirements. Unless all possible remedial actions available to a given TSO are considered when assessing the security of the cross-zonal capacity requirements, the application of a validation adjustment will not be a last resort option, and thus should not lead to a deviation.
- (46) Moreover, when assessing the use of validation adjustments, special care needs to be taken in ensuring that this mechanism does not lead to internal congestion being pushed to the borders. This may happen when TSOs reduce capacities on critical network elements to address forecasted overloads on internal network elements, which are not critical network elements.
- (47) Network elements that are not critical network elements ('CNEs') should in no case lead to reductions of cross-zonal capacities. The same should apply to network elements which are identified as critical but which are not significantly influenced by cross-zonal exchanges (i.e., with a maximum zone-to-zone PTFD below 5%) , as provided by Article 29(3)(b) of the CACM Regulation. These elements will be predominantly loaded with flows resulting from exchanges within bidding zones and, therefore, reducing cross-zonal capacities to avoid congestion on them is both inefficient and disproportionate.
- (48) ACER's assessment shows that the need for deviations from the cross-zonal capacity requirements on grounds of operational security reasons can lead to significant reductions of the calculated capacities, and thus to a less efficient market outcome. Moreover, unless structural measures are developed promptly, the growing share of renewable generation in the power system could further exacerbate the lack of remedial actions to deal with grid congestion, leading to a more frequent need for deviations. ACER considers crucial that deviations from the minimum cross-zonal capacity requirements do not become systematic, due to the lack of grid development or a suboptimal bidding zone configuration and calls for closer attention by the relevant regulatory authorities on ensuring that all the prerequisites for such deviations are met.

**3.1.4. Grid development will be critical to integrate renewable energy, but may not guarantee the fulfilment of 70%**

- (49) A necessary condition for the integration of renewable energy into the system is the reinforcement of the EU's power grid. The vast amounts of renewable energy expected to be integrated into the system in the coming years require a significant acceleration on the EU's grid expansion efforts. With regards to the minimum 70% requirement, the development or reinforcement of power lines where internal congestion often occurs, or is foreseen to occur, allows for more electricity to flow within bidding zones and thus can reduce the ratio of flows induced by internal exchanges that use up capacity of critical network elements, also reducing the amount of redispatching that would be necessary to guarantee the 70%.
- (50) However, the fulfilment of the minimum 70% requirement cannot be solely reliant on the development of the power grid, as it may not be sufficient nor timely enough to consistently enable the fulfilment of the requirement. Firstly, grid development projects may not always have a positive impact on the margin available for cross-zonal trade if they do not tackle specifically the grid bottlenecks internal to bidding zones where the margin is insufficient. By way of example, an increase of capacity of a cross-zonal line may result in an increase of loop flows, which could hamper further the fulfilment of 70%. It is thus important that grid development projects are (also) assessed with regards to their impact on the fulfilment of the minimum 70% requirement.
- (51) Secondly, grid infrastructure projects can entail significant costs to the system and are subject to long development timelines, with potential delays, which may not allow the grid to keep pace with the rapid growth in renewable generation. As an example, assessing the projects under ENTSO-E's Ten-Year Network Development Plan (TYNDP) of 2022 with an expected commissioning date before the end of 2025, points to a significant share (36%) of projects which have been delayed or rescheduled since the previous TYNDP of 2020, and over half of such projects (52%) still being in planning or permitting phases.<sup>19</sup>
- (52) An efficient use of the available grid infrastructure, such as through more coordinated operational processes and a potentially more adequate bidding zone configuration, would limit the number of grid development projects, and their costs, necessary to cope with the expansion of renewable energy.

#### **4. CONCLUSION**

- (53) The full integration of the EU internal electricity market is yet to be realized. Only by achieving truly integrated electricity markets will the EU be able to reap fully the

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<sup>19</sup> See the list of projects under the TYNDP 2022 and their status: <https://tyndp2022-project-platform.azurewebsites.net/projectsheets/transmission>

benefits from the penetration of renewable energy sources into the power system and guarantee a cost-effective decarbonisation. Ensuring non-discriminatory access to the EU network is a fundamental step towards that integration.

- (54) The minimum 70% requirement, introduced in the Electricity Regulation, sets a clear standard for the availability of cross-zonal capacity in the EU, providing certainty to all market participants on their future access to the network. The minimum 70% requirement is also one of the key elements aiming to prevent discrimination of cross-zonal trade against internal trade. In order to comply with this provision without endangering the security of the power system, the Electricity Regulation established a transitory period until the end of 2025 for all transmission system operators to deal with any potential structural grid congestion internal to the bidding zones. The minimum 70% requirement should become fully applicable in all EU Member States by 2026.
- (55) However, ACER's monitoring on the implementation of the minimum 70% requirement over the last years has shown that significant progress is still needed, while already recording a substantial increase in redispatching costs. The delay in implementing key processes, such as the capacity calculation methodologies and redispatching framework, has led to recurring derogations from the legal requirements, while the effects of more structural solutions such as necessary investments in grid reinforcement and potential bidding zone reconfigurations are yet to materialize. Based on the current developments, and without further pursuing such structural solutions, ACER considers that the fulfilment of the minimum 70% requirement across the whole EU by 2026, without massively relying on redispatching, is unlikely.
- (56) While the specific strategy with regards to how to fulfil the minimum 70% requirement is of national discretion, the aforementioned delays in grid expansion, along with the limitations of relying heavily on remedial actions to guarantee the cross-zonal capacity requirements under the current bidding zone configuration, could pose a risk to the EU's ability to uphold the principle of non-discrimination between internal and cross-zonal trade in the coming years. This, in turn, could jeopardize the efforts invested in the integration of the electricity markets in the EU and thus the transition towards a carbon-neutral power system.
- (57) As the fulfilment of the minimum 70% requirement is a key element to enable the energy transition and bring the benefits of an integrated electricity market to the end-consumers, it is essential to foster awareness on the political dimension of the more structural solutions necessary for its fulfilment and to underpin such solutions, in close cooperation with all stakeholders, with objective assessments of their feasibility and the mid- and long-term costs for the system,

**HAS ADOPTED THIS OPINION:**

1. ACER would like to inform the European Commission and European Parliament of the urgency in the implementation of the minimum 70% requirement, and the need to

consider the structural solutions that would enable the fulfilment of this requirement in a cost-efficient and timely manner. These solutions include the potential reconfiguration of bidding zones, the optimal and coordinated use of remedial actions, and targeted grid developments aimed at reducing internal congestion. Not doing so would jeopardize the efforts invested in the transition towards a carbon-neutral power system in the EU. With respect to such solutions, ACER notes the following:

- a) In relation to the coordinated use of remedial actions, ACER notes the delay in implementing the necessary methodologies to forecast, activate and share the cost of remedial actions across the EU, beyond the established regulatory deadlines. It is important that TSOs implement such processes without further delay in order to mitigate reductions of cross-zonal capacity below the minimum 70% requirement due to excessive loop flows and to increase transparency on the need and use of remedial actions. Moreover, TSOs should ensure that implementation delays beyond the legal deadlines do not jeopardise the timeline provided in the Electricity Regulation for the fulfilment of the minimum 70% requirement.
- b) Member States and, if they fail to agree, the European Commission, will have a key role to play in upholding the principle of non-discrimination of cross-zonal trade once the bidding zone review is finalized. Wherever the availability of remedial actions does not enable the sustained and efficient fulfilment of the minimum 70% requirement as of 2026, and where infrastructure investments cannot cover the remaining gap within the foreseen timeframe, Member States or the European Commission will need to decide on the appropriate configuration of the bidding zones. When taking such decision, it is important that they carefully consider their respective renewable energy targets and the overall system costs.

This Opinion is addressed to the European Parliament and the European Commission.

Done at Ljubljana, on 10 April 2024.

**- SIGNED -**

*For the Agency  
The Director*

C. ZINGLERSEN

Annexes:

Annex I – Evaluation of responses