Request of Elia System Operator SA for a derogation from the minimum level of capacity to be made available for cross-zonal trade

in accordance with Article 16(9) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast)

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Contents

Whereas

(1) 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 (recast), hereinafter "Regulation 2019/943", prescribes that TSOs shall not 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 as a means of managing flows resulting from transactions internal to bidding zones. The same article also defines that this requirement shall be considered to be complied with if a minimum level of available capacity for cross-zonal trade is reached. For borders using a flow-based approach, this level (hereinafter referred to as the "CEP70 requirement") is generally set to 70% of the capacity of internal and cross-zonal critical network elements taking into account contingencies (hereinafter referred to as "CNECs"). Transitory measures, such as action plans pursuant to Article 15 of Regulation 2019/943 or derogations pursuant to Article 16(9) of the same regulation, allow progressivity in reaching this minimum capacity.

(2) Article 16(9) of Regulation 2019/943 prescribes that upon request of transmission system operators in a capacity calculation region, the relevant regulatory authorities may grant a derogation from the CEP70 requirement on foreseeable grounds where necessary for maintaining operational security. The 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. The extent of such a derogation shall be strictly limited to what is necessary to maintain operational security and shall avoid undue discrimination between internal and cross-zonal exchanges.

(3) Article 16(4) of Regulation 2019/943 prescribes that counter-trading and redispatch, including cross-border redispatch, shall be used to reach the CEP70 requirement. This applies without condition to the use of internal redispatch, yet this article stipulates that the application of cross-border measures is subject to the implementation of a redispatching and counter-trading cost sharing methodology. This methodology is not yet implemented in the capacity calculation regions which Elia System Operator SA (hereinafter "Elia") is a member of.

(4) The Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on Capacity Allocation and Congestion Management (hereinafter referred to as the "CACM Regulation") and the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereinafter referred to as the "SOGL Regulation") require TSOs to deliver methodologies which are key to managing the flows in the electricity grid via coordinated capacity calculation and coordinated application of remedial actions. These key methodologies are:

a. The Capacity Calculation Methodology for the Core Capacity Calculation Region as referred to in Article 21 of the CACM Regulation (hereinafter referred to as "Core CCM").

b. The operational security coordination methodology as referred to in Article 76 of the SOGL Regulation (hereinafter referred to as "SOGL 76 methodology").

c. The coordinated redispatching and countertrading methodology as referred to in Article 35 of the CACM Regulation (hereinafter referred to as "CACM 35 methodology").

d. The redispatching and countertrading cost sharing methodology as referred to in Article 74 of the CACM Regulation (hereinafter referred to as "CACM 74 methodology").

(5) The rationale and objectives of an action plan and of a derogation have been studied and discussed between Elia, the Belgian NRA (hereinafter "CREG") and the Belgian State. This led to the conclusion that there is no justification for an action plan in Belgium according to Article 15 of Regulation 2019/943 since Belgium is not currently facing structural congestions and is not expected to be in the coming years. However, acknowledging that aforementioned key

methodologies from the CACM Regulation and SOGL Regulation are not yet implemented, it was concluded that Elia cannot rely on them to implement the CEP70 requirement as of January 1st 2020. In order to be compliant with Regulation 2019/943, Elia therefore decided, based on a common understanding with CREG and the Belgian State, to submit a request for a derogation from the CEP70 requirement on the basis of three foreseeable grounds.

(6) The first foreseeable ground to request a derogation is an externality, being that loop flows on Belgian CNECs cannot be contained to an acceptable level, which is creating an operational security risk if the CEP70 requirement would be applied per January 1st 2020:

a. From Article 16(8) of Regulation 2019/943 it can be understood that the maximum acceptable level of loop flows is defined as the amount of loop flows which, together with the reliability margins and the internal flows, uses 30% of capacity of a CNEC.

b. Historical analyses of data from year 2018 have shown that the level of loop flows on Belgian CNECs can amount to 70%, and is structurally superior to a level that would allow meeting Article 16(8) of Regulation 2019/943.

c. Loop flows are created in neighbouring bidding zones and cannot be contained by using the redispatching potential available in Belgium. Phase Shifting Transformers (PSTs) located at the North border of Belgium can help partially limiting the loop flows, but even an optimised utilisation of the Belgian PSTs alone is not expected to be sufficient.

d. Considering the possibility for Member States to implement action plans in accordance with Article 15 of Regulation 2019/943, Elia expects that structural congestions in the neighboring bidding zones will not immediately disappear on 1st January 2020. Consequently, loop flows are expected to remain above an acceptable level according to Article 16(8) of Regulation 2019/943. Although the content of the possible action plans of neighboring Member States is unknown, it is however assumed that the level of loop flows through Belgium will decrease in the following years thanks to the linear trajectory followed by Member States implementing an action plan in accordance with Article 15(2) of Regulation 2019/943.

e. Possibly anticipating or complementing the full implementation of action plans outside Belgium, the implementation in the Core capacity calculation region of the CACM and SOGL methodologies listed in paragraph 4 should allow reducing the level of loop flows to an acceptable level. Indeed:

    i. Article 10(5) of the Core CCM will offer each TSO the possibility to individually define the initial setting of its own non-costly and costly remedial actions, based on the best forecast of their application and with the aim to reduce the loop flows on its cross-zonal CNECs below a loop flow threshold that avoids undue discrimination. The same loop flow threshold is also considered as a constraint in the non-costly remedial action optimiser, as described in Article 16 of the Core CCM. This is important in the Belgian context as the Belgian PSTs contribute to the reduction of loop flows.

    ii. If the mechanisms of the capacity calculation methodology are not sufficient to decrease loop flows below an acceptable level and if Elia faces congestions as a result of the application of the CEP70 requirement, SOGL 76 and CACM 35 should allow finding solutions in a coordinated way in the region to relieve these congestions.

    iii. In addition to the implementation of SOGL 76 and CACM 35, which alleviate operational security risk, CACM 74 should enable a fair cost sharing, ensuring that the TSOs of the bidding zone(s) at the origin of the loop flows above an acceptable level bear the costs of the remedial actions, in accordance with the polluter-pays principle as described in Article 16(13) of Regulation 2019/943.

(7) The second foreseeable ground to request a derogation is the possible lack of redispatching potential to allow Elia to follow the CEP70 requirement without endangering operational security when the grid is in an outage situation:

a. Considering the grid investment plan in Belgium includes upgrades of existing corridors, situations of long duration outages are expected to occur with a certain frequency and are, as such, considered as foreseeable. The planning of these long duration outages can be consulted on the ENTSO-E Transparency Platform, while visibility of their impact on capacity calculation is provided via the SPAIC process in place in CWE.

b. These grid investments are required to keep the grid fit for purpose considering the future energy mix, thus to avoid structural congestions arising in the future.

c. In an outage situation, the grid capacity is reduced and internal flows on the remaining critical network elements increase compared to the grid situation where the outage is not present.

d. It can occur that the available internal redispatching potential is insufficient to meet the CEP70 requirement while coping with the increased level of internal flows as a result of these outages.

e. The fact that the SOGL 76 methodology and CACM 35 methodology are not yet in place prevents Elia to rely on cross-border remedial actions. Existing bilateral redispatching contracts do not enable an efficient use due to the manual procedures involved and the limited visibility on the future availability of redispatching potential.

f. Requests for derogation due to outage situations are expected to become less frequent thanks to the implementation of the methodologies listed in the previous paragraph which will give more structural redispatching possibilities.

(8) The third foreseeable ground to request a derogation is the operational security risk introduced on one hand by the development of new processes to offer higher capacities to the market, and on the other hand by the introduction of new tools enabling the implementation of this request for derogation:

a. As regards the risk related to new processes to offer higher capacities:

i. The implementation of the CEP70 requirement should lead to more capacity given to the market which may require a more extensive application of remedial actions, in accordance with Article 16(4) of Regulation 2019/943. The operational experience for processes with an extensive application of remedial actions is currently low.

ii. The likelihood of a more extensive application of remedial actions is higher in Member States where no action plan is applied, as it is the case for Belgium.

iii. In general, the overall effect on capacities offered to the market and on the extent of application of remedial actions can be assessed only when the situation in all countries having an influence on each other's grid is known. As of January 1st 2020, action plans pursuant to Article 15 of Regulation 2019/943 and derogations pursuant to Article 16(9) of Regulation 2019/943 may be applied by different Member States. The application of these measures and/or their extent is currently unknown by Elia. Therefore Elia is not in a position to ensure that its grid operators will have the relevant and required experience to ensure operational security as of January 1st 2020.

b. As regards to the risk related to new tools:

   i. This request for derogation, which applies a methodological approach as detailed in Article 3, leads to the need to develop additional tools to correctly account for the effect of the loop flows above an acceptable level in accordance with Article 4.

   ii. While the implementation of these new tools is ongoing at the time of the submission of this request for derogation, the short time between the publication of Regulation 2019/943 and the entry into force of the CEP70 requirement, together with the discussions related to the interpretation of the regulation at national, regional and European level, did not allow Elia to anticipate much on the implementation of these tools. Consequently, the tools will only benefit from a very limited testing period of 4 to 6 weeks during which the operators are to be trained as well. An additional testing period of 3 months is required to acquire experience and stabilize the tools and as such guarantee the quality and stability of the results, which in turn is needed to guarantee operational security.

To mitigate the identified operational security risks, Elia requests a transition period to create the relevant experience of the processes and to complete the testing of the tools. During this period, a so-called external parallel run approach shall be applied, as described in Article 6. Besides the aforementioned reasons, this approach allows giving some foresight to market participants about the expected impact of the implementation of the CEP70 requirement.

(9) This request for derogation is compliant with Regulation 2019/943, more specifically Article 16(9), since:

a. The grounds to request a derogation are foreseeable, as set out in paragraph 4 to 8.

b. The derogation is required to guarantee operational security as developed in paragraph 4 to 8.

c. The extent of the derogation is strictly limited to what is necessary:

   i. Acknowledging the limitations by the absence of the CACM and SOGL methodologies listed in paragraph 4, the redispatching potential structurally available to Elia will be used to reduce too high Belgian internal flows. Only if the operational security cannot be guaranteed in this situation (due to a lack of redispatching potential), the capacity for cross-zonal trade set in the capacity calculation process is reduced.

   ii. The methodological approach described in Article 3 allows taking assumptions as late as possible in the capacity calculation process, that is, with the most accurate information related to the grid situation. This approach reduces the extent of the derogation compared to an approach where fixed values would have been defined and included directly in the derogation. The methodological approach avoids under- or overestimating the actual need for a derogation. Indeed, a fixed value approach would lead to unnecessary security margins considering the variety of situations to be covered, the intrinsic uncertainty of grid operation and the lack of visibility on the intentions of neighbouring Member States regarding their approach for implementing Article 16 of Regulation 2109/943, and possibly Article 15 of the same regulation. Given the fact that loop flows follow a variable pattern by nature, the inefficiency of a fixed value approach would be significant and structural.

d. The derogation avoids undue discrimination between internal and cross-zonal exchanges: the sum of reliability margins, loop flows below an acceptable level and internal flows on each CNEC is lower than 30% for as much as operational security can be guaranteed. This ensures that, even in presence of loop flows above an acceptable threshold, the internal flows accounted for in the capacity calculation are reduced in order to avoid undue discrimination between internal and cross-zonal exchanges.

(10) The cornerstones of this approach have been presented to Belgian market parties and to the NRAs of the Core capacity calculation region during an implementation group meeting. The comments raised have been taken into account when writing this request.

ELIA SUBMITS THE FOLLOWING REQUEST FOR DEROGATION FROM THE MINIMUM LEVEL OF CAPACITY TO BE MADE AVAILABLE FOR CROSS-ZONAL TRADE

Article 1. Subject matter and scope

(1) This request for derogation is a request from Elia to derogate from the implementation of the minimum margin available for cross-zonal trade as established in Article 16(8) and in accordance with Article 16(9) of Regulation 2019/943.

(2) This request for derogation is based on three different reasons to deviate from the CEP70 requirement: (i) loop flows above an acceptable level, as detailed in Article 4 and justified in paragraph 6 of the whereas section, (ii) the outages, as detailed in Article 5 and justified in paragraph 7 of the whereas section, and (iii) the introduction of new processes and tools, as detailed in Article 6 and justified in paragraph 8 of the whereas section.

(3) The minimum margin available for cross-zonal trade as defined by the CEP70 requirement or by this request for derogation will be implemented for as long as operational security can be guaranteed. Deviations will be reported to CREG along with a justification why the deviation was required to guarantee operational security.

(4) Within 6 months following the approval of this request for derogation by the Belgian NRA, Elia shall draft a report detailing the methodology and projects that shall provide a long-term solution to the operational security risk that this derogation seeks to address, including the elements listed in paragraphs 5(e) and 6(e) of the whereas section. This report will be presented to the Belgian NRA and published for stakeholders, in line with the requirements in Article 16(9), third paragraph of Regulation 2019/943.

Article 2. Definitions and interpretation

(1) For the purpose of this request for derogation, the terms used in this document shall have the meaning of the definitions included in Article 2 of Regulation 2019/943, Article 2 of the CACM Regulation, Article 2 of the Core DA CCM, Article 2 of the ACER Recommendation No 01/2019, and the Central-Western Europe (hereinafter "CWE") Flow-Based Market Coupling Approval Package.

(2) In this request for derogation, unless the context requires otherwise:

a. The singular indicates the plural and vice versa.

b. The table of contents, headings and examples are inserted for convenience only and do not affect the interpretation of this derogation request.

c. Any reference to legislation, regulations, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force.

Article 3. Methodological approach for derogation

(1) The approach used in this request for derogation defines principles and calculation rules including, where needed, mathematical formulas. These principles and calculation rules are applied to the day ahead capacity calculation process as applied in the CWE coordination area.

(2) More specifically, the methodological derogation takes the common grid models (24 in total, 1 for each hour) delivered as part of the CWE day ahead capacity calculation process as basis and applies the following principles:

a. During the qualification phase, the loop flows are calculated and the minimum margin available for cross-zonal trade is applied to the Belgian CNECs as per the calculation rules explained in Article 4. For the avoidance of doubt, if the loop flows are below the acceptable level defined in paragraph 2 of Article 4, the minimum margin remains equal to 70%.

b. During the verification phase, operational security is assessed. This implies the detection of congestion and the possibility to relieve such congestion through the application of remedial actions, non-costly and costly.

c. As long as operational security can be guaranteed, the minimum margin resulting from the qualification phase is kept as result for the verification phase. If not, the minimum margin is reduced to a level that guarantees operational security.

Article 4. Loop flows

(1) The application of this derogation for loop flows above an acceptable level entails the following steps:

a. Step 1: define the acceptable level of loop flows LF_{accept} per CNEC, as further detailed in paragraph 2.

b. Step 2: calculate the loop flows LF_{calc} per CNEC, as further detailed in paragraph 3.

c. Step 3: define the *minRAM* parameter taking into account the results of the previous steps, as further detailed in paragraph 4.

(2) Article 16(8) of Regulation 2019/943 prescribes that a total amount of 30% of capacity on each CNEC can be used for the reliability margins, loop flows and internal flows. This derogation defines the acceptable level of loop flows (LF_{accept}) for the different type of critical network elements as follows:

a. Cross-border critical network elements: the acceptable level of loop flows is equal to the difference between 30% and the reliability margins of these elements.

b. Internal critical network elements: a choice has to be made on how to divide the capacity between loop flows and internal flows. This request for derogation considers that the acceptable level of loop flows is equal to half of the difference between 30% and the reliability margins of these elements. The second half is used by the internal flows.

(3) The loop flows LF_{calc} are calculated in the day ahead capacity calculation process as follows:

a. The common grid model enriched with the coordinated application of preventive remedial actions as established during the qualification phase, shall be used.

b. Obtain the zero-balanced grid model by shifting the net positions of the common grid model to zero:

$$F_{0,all} = F_{ref} - \mathbf{PTDF}_{\boldsymbol{all}} \overrightarrow{NP}_{ref,all}$$

With:

i. $F_{0,all}$: flow derived from a zero-balanced common grid model, meaning a situation without any commercial exchange between bidding zones within Continental Europe and between bidding zones within Continental Europe and bidding zones of other synchronous areas.

ii. F_{ref} : flow per critical network element in the CGM.

iii. $PTDF_{all}$: power transfer distribution factor matrix for all bidding zones in Continental Europe and all critical network elements.

iv. $NP_{ref,all}$: total net positions per bidding zone in Continental Europe included in the CGM.

c. Apply flow decomposition to derive the loop flows on each CNEC. Until a flow decomposition methodology is approved within Core, the following flow decomposition methodology will be applied:

i. Cross-border critical network elements: as there is no internal flow the $F_{0,all}$ defines directly the loop flows.

ii. Internal critical network elements: a flow decomposition is required since $F_{0,all}$ consists of internal flows and loop flows. To distinguish internal flows and loop flows, the nodal positive and negative injections are considered in the zero-balanced grid model. A perfect-mixer principle[1] is used in order to uniquely allocate the flows to the injections.

d. For a given CNEC, LF_{calc} is equal to the loop flows computed following paragraph c divided by the maximum admissible power flow (F_{max}).

(4) The minimum margin available for flows induced by cross-zonal exchanges is then equal to:

$$minRAM = 70\%^{2} - max\left(0; LF_{calc} - LF_{accept}\right)$$

Article 5. Outages

(1) In principle, even when the grid is in outage situation due to one or several internal critical network elements being in outage, Elia shall aim at applying the same minimum margin in the capacity calculation as defined according to Article 4, by using if needed non-costly and costly remedial actions.

(2) In case operational security cannot be guaranteed, due to the absence or insufficient nature of the non-costly and costly remedial actions, the minimum margin as defined according to Article 4 shall be reduced to a level that guarantees operational security.

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[1] Firstly introduced in "*J. Bialek, D. B. Tam, Tracing the generators' output, in International Conference on Opportunities and Advances in International Electric Power Generation (Conf. Publ. No. 419), Durham, UK, March 1996*"

[2] The 70% is the margin available for all cross zonal trades (MACZT) thus consisting of trades within the CWE coordination area (MCCC) as well as trades on borders external to the CWE coordination area (MNCC).

(3) When reporting about the deviation in accordance with paragraph 3 of Article 1 and in case of an outage situation, Elia shall include in the reporting to CREG whether the minimum margin defined according to Article 4 would have been reached in case the outage(s) would not have been present.

Article 6. New processes and tools

(1) A parallel run will be set up for the day ahead capacity calculation process in CWE, which means that:

   a. Elia will execute the new processes and local tools for the calculation of the minimum margin on its CNECs in accordance with the CEP70 requirement and this request for derogation.

   b. The capacity calculation process is run upon this dataset from Elia, combined with the dataset from the other TSOs in CWE:

      i. For those TSOs that would also apply a parallel run, the dataset specific for the parallel run will be used, allowing via the parallel run to test the combined effect of the implementation of the CEP70 requirement.

      ii. For those TSOs that do not apply a parallel run, the dataset provided to the operational day ahead flow-based process in CWE will be taken.

   c. The results of the parallel run will be published.

(2) During the parallel run, Elia will continue to apply the current approved methodology and practices in the CWE region to the operational day ahead capacity calculation process in CWE. For the avoidance of doubt, the current methodology in the CWE region includes providing on the Belgian CNECs a minimum margin for cross-zonal trades within the CWE region equal to 20%.

Article 7. Extent and duration of the derogation

(1) This request for derogation is applicable to all Belgian CNECs participating to the day ahead capacity calculation process in CWE, thus respecting the applicable PTDF threshold.

(2) The request for derogation regarding loop flows in accordance with Article 4 and regarding outages in accordance with Article 5 is requested for 1 year starting from the 1st of January 2020. The derogation regarding the parallel run in accordance with Article 6 is requested for 3 months starting from the 1st of January 2020.