

**DECISION No 16/2019  
OF THE EUROPEAN UNION AGENCY  
FOR THE COOPERATION OF ENERGY REGULATORS**

**of 30 October 2019**

**approving the Nordic CCR TSOs' proposal for the long-term capacity  
calculation methodology**

THE EUROPEAN UNION AGENCY FOR THE COOPERATION OF ENERGY REGULATORS,

Having regard to the Treaty on the Functioning of the European Union,

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, Articles 6(10)(b) thereof,

Having regard to Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation<sup>2</sup>, and, in particular, Article 4(10) thereof,

Having regard to the outcome of the consultation with the concerned regulatory authorities and transmission system operators,

Having regard to the favourable opinion of the Board of Regulators of 22 October 2019, delivered pursuant to Article 22(5)(a) of Regulation (EU) 2019/942,

Whereas:

**1. INTRODUCTION**

- (1) Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation (the 'FCA Regulation') laid down a range of requirements on cross-zonal capacity allocation in the forward markets. These requirements also include the development of the capacity calculation methodology

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

<sup>2</sup> OJ L259, 27.9.2016, p. 42.

(‘CCM’) for the long-term time frames in each capacity calculation region (‘CCR’) in accordance with Article 10 *et seq.* of the FCA Regulation.

- (2) Pursuant to Article 4(1) and (7)(a), as well as Article 10(1) of the FCA Regulation, transmission system operators (‘TSOs’) of each CCR are required to develop a common proposal for a common coordinated CCM within the respective CCR and submit it to the competent regulatory authorities for approval. Then, those regulatory authorities should reach an agreement and take a decision on the proposal for the CCM within six months after the receipt of the proposal by the last regulatory authority, according to Article 4(9) of the FCA Regulation. When the regulatory authorities fail to reach an agreement within the six-month period or upon their joint request, the Agency, pursuant to Article 4(10) of the FCA Regulation, is called upon to adopt a decision concerning the TSOs’ proposal in accordance with Article 6(10)(b) of Regulation (EU) 2019/942.
- (3) The present Decision of the Agency follows from the request of all the regulatory authorities of the Nordic CCR (‘Nordic regulatory authorities’) that the Agency adopts a decision on the proposal for the long-term CCM (‘LT CCM’), which the TSOs of the Nordic CCR (‘Nordic TSOs’) submitted to all Nordic regulatory authorities for approval and on which those regulatory authorities could not agree. Annex I to this Decision sets out the LT CCM pursuant to Article 10(1) of the FCA Regulation, as decided by the Agency.

## **2. PROCEDURE**

### **2.1. Proceedings before regulatory authorities**

- (4) Article 10 of the FCA Regulation requires all TSOs in each CCR to submit a proposal for a common coordinated CCM for the long-term timeframes for their region, no later than six months after the approval of the common CCM referred to in Article 9(7)(a) of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (the ‘CACM Regulation’) within the specific region. As the Nordic CCM according to Article 20(2) of the CACM Regulation was approved by the last regulatory authority of the Nordic CCR on 16 July 2018, the Nordic TSOs were required to submit a proposal for a common coordinated LT CCM by 16 January 2019.
- (5) On 16 November 2018, the Nordic TSOs published for public consultation the draft *‘All TSOs’ of the Nordic Capacity Calculation Region proposal for the common capacity calculation methodology in accordance with Article 10(1) of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation’*. The consultation lasted from 16 November 2018 until 17 December 2018.
- (6) On 16 January 2019, the Nordic TSOs submitted to the Nordic regulatory authorities an *‘All TSOs’ of the Nordic Capacity Calculation Region proposal for the common capacity calculation methodology in accordance with Article 10(1) of Commission*

*Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation* (hereafter referred to as the ‘Proposal’).

## **2.2. Proceedings before the Agency**

- (7) In a letter dated 8 May 2019 and received by the Agency on 15 May 2019, the chair of the Energy Regulators Regional Forum CCR Nordic<sup>3</sup>, on behalf of all regulatory authorities from the Nordic CCR, informed the Agency that they jointly agreed to request the Agency to adopt a decision on the Proposal pursuant to Article 4(10) of the FCA Regulation.
- (8) The letter was accompanied by a document titled ‘*CCR Nordic Regulatory Authorities statement of disagreement on the CCR Nordic TSO’s proposal on Capacity calculation methodology according to Commission Regulation (EU) 2016/1719 (FCA GL)*’ explaining the diverging views among the Nordic regulatory authorities and a draft request for amendment from one regulatory authority to clarify their position. According to these documents, the main reason of disagreement on the Proposal was related to diverging legal interpretations concerning the labelling of the methodology as a coordinated net transmission capacity approach or a flow-based approach for the capacity calculation.
- (9) On 27 August 2019, the Agency launched a public consultation on the Proposal, inviting all market participants to provide their comments by 17 September 2019. The consultation document asked stakeholders to provide views on three topics, which were deemed the most relevant - (i) the implications of using the flow-based approach; (ii) the requirements on the selection of capacity network elements associated with a contingency (CNECs); and (iii) the dynamic stability assessment; as well as on (iv) other issues that may require the amendment of the Proposal. The summary and evaluation of the responses received are presented in Annex II to this Decision.
- (10) Moreover, the Agency closely cooperated with all Nordic regulatory authorities and TSOs and further consulted on the amendments to the proposed CCM during numerous teleconferences and meetings and through exchanges of draft amendments. In particular, the following procedural steps were taken:
- 5 June 2019: teleconference with all Nordic regulatory authorities;
  - 17 June 2019: teleconference with all Nordic regulatory authorities;
  - 3 July 2019: teleconference with all Nordic TSOs and regulatory authorities;
  - 10 July 2019: teleconference with all Nordic TSOs and regulatory authorities;
  - 6 August 2019: teleconference with all Nordic regulatory authorities;

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<sup>3</sup> The Nordic regulatory authorities’ platform to consult and cooperate for reaching a unanimous agreement on NEMO’s and TSO’s proposals.

- 20 August 2019: teleconference with all Nordic TSOs and regulatory authorities;
- 28 August 2019: teleconference with all Nordic TSOs and regulatory authorities;
- 6 September 2019: teleconference with all Nordic TSOs and regulatory authorities;
- 16 September 2019: teleconference with all Nordic TSOs and regulatory authorities;
- 20 September 2019: teleconference with all Nordic TSOs and regulatory authorities;
- 1 October 2019: discussion with all regulatory authorities in the framework of the Agency's Electricity Working Group ('AEWG');
- 4 October 2019: teleconference with all regulatory authorities.

### **3. THE AGENCY'S COMPETENCE TO DECIDE ON THE PROPOSAL**

- (11) Pursuant to Article 4(10) of the FCA Regulation, where the regulatory authorities have not been able to reach an agreement or upon their joint request, the Agency shall adopt a decision concerning the submitted terms and conditions or methodologies within six months, in accordance with Article 6(12)(a) of Regulation (EU) 2019/942.
- (12) According to the letter of the Chair of the Energy Regulators Regional Forum CCR Nordic dated 8 May 2019 and received by the Agency on 15 May 2019, all Nordic regulatory authorities agreed jointly to request the Agency to adopt a decision on the Proposal pursuant to Article 4(10) of the FCA Regulation. At the time of this request, the Nordic regulatory authorities were competent to jointly refer the Proposal to the Agency, since it was made before the expiry of the six-month deadline after receiving the Proposal (i.e. 16 July 2019).
- (13) Therefore, under the provisions of Article 4(10) of the FCA Regulation and Article 6(10) of Regulation (EU) 2019/942, the Agency became responsible to adopt a decision concerning the submitted Proposal by the referral received on 15 May 2019.

### **4. SUMMARY OF THE PROPOSAL**

- (14) The Proposal consists of the following elements:
- a) A 'Whereas' section and Articles 1 and 2, which include general provisions, the scope of application and the definitions;
  - b) Articles 3 to 7, which include methodologies for the calculation of the inputs, i.e. the reliability margin, the operational security limits, the determination of relevant contingencies, the generation shift keys and the remedial actions in capacity calculation;
  - c) Articles 8 to 15, which include a description of the capacity calculation approach; i.e. a step-by-step mathematical description of the capacity calculation, followed by further details on some of those steps, including the rules for taking into account

previously allocated capacity, adjustment of power flows due to remedial actions and efficiently sharing power flow capabilities of critical network elements (CNEs) among different bidding zone borders within and outside the Nordic CCR, as well as the capacity validation methodology and the fallback procedures;

- d) Articles 16 to 18, which include rules on data provision and the identification of the involved roles and entities in the capacity calculation process;
- e) Article 19, which is dedicated to the implementation timeline;
- f) Article 20, which includes provisions on language.

## 5. ASSESSMENT OF THE PROPOSAL

### 5.1. Legal framework

- (15) Article 4(1) and (7)(a) of the FCA Regulation requires TSOs to provide the proposal for a common CCM pursuant to Article 10 of the FCA Regulation to all regulatory authorities of the concerned region for their approval.
- (16) Article 10(1) of the FCA Regulation sets general requirements regarding the development of a proposal for a common CCM for the long-term time frames. In that context, TSOs in each capacity calculation region are required to submit a proposal for a CCM for the long-term time frames no later than six months after the approval of the CCM in accordance with Article 20(2) of the CACM Regulation. This proposal for a common CCM for the long-term time frames needs to be consulted in accordance with Article 6 of the FCA Regulation.
- (17) Article 10(2) to (6) of the FCA Regulation sets out general requirements and possible approaches for long-term capacity calculation and its required compatibility with the CCM established for the day-ahead and intraday time frames. When the approach of a security analysis based on multiple scenarios according to Article 10(4)(a) is chosen for a LT CCM, the requirements set out in Article 21(1), except Article 21(1)(a)(iv) where relevant, of the CACM Regulation shall apply.
- (18) Article 10(7) of the FCA Regulation sets out the requirement of a fallback procedure and refers to Article 21(3) of the CACM Regulation.
- (19) Article 11 of the FCA Regulation sets out requirements related to the reliability margin methodology to be necessarily included in the CCM by referring to the requirements set out in Article 22 of the CACM Regulation.
- (20) Article 12 of the FCA Regulation lays down requirements related to the methodology for operational security limits and contingencies by referring to the requirements set out in Article 23(1) and (2) of the CACM Regulation.
- (21) Article 13 of the FCA Regulation stipulates requirements related to the generation shift keys methodology by referring to the requirements set out in Article 24 of the CACM Regulation.

- (22) Article 14 of the FCA Regulation specifies requirements related to the methodology for remedial actions in capacity calculation and refers to the requirements set out in Article 26 of the CACM Regulation if the LT CCM takes remedial actions into account.
- (23) Article 15 of the FCA Regulation sets requirements related to the methodology for the validation of cross-zonal capacity by referring to the requirements set out in Article 26 of the CACM Regulation.
- (24) Article 21 of the FCA Regulation defines general requirements related to the capacity calculation process and refers to the general requirements related to the capacity calculation process set in Article 27 of the CACM Regulation.
- (25) Article 22 of the FCA Regulation provides for requirements related to the creation of a common grid model. However, these are not directly relevant for capacity calculation methodology.
- (26) Article 23 of the FCA Regulation sets requirements related to the regional calculation of cross-zonal capacity. For LT CCM applying the security analysis based on multiple scenarios pursuant to Article 10 of the FCA Regulation, Article 23 (2) of the FCA Regulation refers to the requirements set in Article 29, except its paragraph (4), of the CACM Regulation.
- (27) Article 24 of the FCA Regulation sets requirements related to the validation and delivery of cross-zonal capacity.
- (28) As a general requirement, Article 4(8) of the FCA Regulation provides that the proposals for terms and conditions or methodologies include a proposed timescale for their implementation and a description of their expected impact on the objectives of the same Regulation.
- (29) Further, Article 4(8) of the FCA Regulation provides that the proposals for terms and conditions or methodologies must be in line with the objectives of the FCA Regulation defined in its Article 3.

## **5.2. Assessment of the legal requirements**

### **5.2.1. Assessment of the requirements for the development of LT CCM, its impact and the application of the different approaches**

#### **5.2.1.1. *Development of the proposal for a capacity calculation methodology for long-term time frames***

- (30) The Proposal fulfils the requirements of Articles 4(1) and 4(7)(a) of the FCA Regulation, as all Nordic TSOs jointly developed a proposal for a common LT CCM for the Nordic CCR.
- (31) The Proposal fulfils the requirements of Article 10(1) of the FCA Regulation, as all Nordic TSOs submitted a proposal for a common LT CCM for the Nordic CCR for

approval to all Nordic regulatory authorities on 16 January 2019, which is within six months after the approval of the Nordic CCM in accordance with Article 20(2) of the CACM Regulation by the last NRA of the Nordic CCR on 16 July 2018.

*5.2.1.2. Required content of the proposal for a capacity calculation methodology*

- (32) The Proposal partially fulfils the requirements of Article 10 of the FCA Regulation regarding the content of the CCM.
- (33) The Proposal fulfils the general requirement of Article 10(2) of the FCA Regulation as Article 8(1) of the Proposal defines that the coordinated net transmission capacity (CNTC) approach is used for capacity calculation.
- (34) Depending on whether the flow-based or the CNTC approach is chosen, specific legal requirements listed in the CACM Regulation for a capacity calculation methodology apply. While Article 21(1)(b)(v) and (vi) of the CACM Regulation is mainly referring to the output of the two different approaches, Article 29(7) and (8) of the same Regulation is describing the specific sequential steps for the calculation process for each of the approaches. Although the Proposal is claiming to apply the CNTC approach, the steps described in the Proposal for the capacity calculation process are not following the sequential procedure laid out in Article 29(8) of the CACM Regulation for the coordinated net transmission capacity approach, but are very similar to the steps described in the Nordic CCM for the day-ahead time frame, which applies the flow-based based approach and therefore mainly follow the steps described for a flow-based capacity calculation according to Article 29(7) of the CACM Regulation.
- (35) According to the CACM Regulation, the CNTC approach was never meant to be applied in a meshed transmission network, because it is extremely difficult efficiently to define simultaneously feasible NTC values for highly interdependent borders as is the case for the Nordic CCR. Therefore, the Nordic CCR should ideally apply a flow-based approach, which would also ensure compatibility with the Nordic CCM of the day-ahead time frame pursuant to Article 10(3) of the FCA Regulation. For this reason, the Agency is proposing not to redraft the proposal to follow the steps required in Article 29(8) of the CACM Regulation<sup>4</sup>, but rather to adopt the Nordic LT CCM as a flow-based methodology.
- (36) The Proposal fulfils the general requirement of Article 10(3) of the FCA Regulation as the proposal is generally compatible with the capacity calculation methodology established for the day-ahead and intraday time frames pursuant to Article 21(1) of the CACM Regulation. The compatibility is achieved by using the same principles in

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<sup>4</sup> The Agency is not familiar with any CNTC method for highly meshed network, which is fully compliant with Article 29(8) of the CACM Regulation.

calculation of cross-zonal capacity and providing consistency considering the capacity calculation inputs across the different time frames.

- (37) The Proposal fulfils the general requirement of Article 10(4) of the FCA Regulation by applying a security analysis based on multiple scenarios.
- (38) As the Proposal proposes to apply the CNTC approach, the requirements of Article 10(5) of the FCA Regulation do not apply to the Proposal. Since the Agency deemed it necessary to amend the Nordic LT CCM in order to apply the flow-based approach, the Agency provided further explanations in the adopted LT CCM as presented in Annex I on how the requirements of Article 10(5) of the FCA Regulation are met.
- (39) To meet the requirement of Article 10(5)(a) of the FCA Regulation, the Agency describes in Recital (18) of the adopted LT CCM as presented in Annex I, the principle of increased efficiency in capacity calculation methodologies by applying the flow-based approach in capacity calculation regions characterised by meshed networks and physically interdependent bidding zone borders like the Nordic CCR.
- (40) In Recital (19) of the adopted LT CCM as presented in Annex I, the Agency describes how the requirements of Article 10(5)(b) and (c) of the FCA Regulation are met. These requirements can be fulfilled by providing sufficient time through the transition period according to Article 19 of the adopted LT CCM. By the time the single allocation platform ('SAP') is able to allocate cross-zonal capacities using the flow-based parameters, the Nordic TSOs shall ensure transparency and accuracy of the flow-based results in accordance with Article 10(5)(b) of the FCA Regulation. This period will also provide market participants with at least six months to adapt their processes in accordance with Article 10(5)(c) of the FCA Regulation.
- (41) Given the amendments introduced by the Agency as described above, the adopted LT CCM as presented in Annex I fulfils the requirements of Article 10(5) of the FCA Regulation.
- (42) Since the Proposal is applying the security analysis based on multiple scenarios, it aims to fulfil the requirements under Article 10(6) of the FCA Regulation, which refers to the requirements as provided in Article 21(1) of the CACM Regulation, except its Article 21(1)(a)(iv) where relevant.
- (43) The Proposal meets the general requirements of Article 21(a) of the CACM Regulation as it includes:
- a) a methodology for determining the reliability margin in Article 3 of the Proposal;
  - b) methodologies for determining operational security limits in Article 4 of the Proposal and contingencies relevant to capacity calculation in Article 5 of the Proposal;
  - c) a methodology for determining generation shift keys in Article 6 of the Proposal;
- and

- d) a methodology for determining the remedial actions to be considered in capacity calculation in Article 7 of the Proposal.
- (44) The Proposal meets the general requirements of Article 21(b) (i), (iii), (iv), (vi) and (vii) of the CACM Regulation as it includes:
- a) a mathematical description of the applied capacity calculation approach in Article 8 of the Proposal;
  - b) rules for taking into account previously allocated cross-zonal capacity in Article 9 of the Proposal;
  - c) rules on the adjustment of power flows on critical network elements or of cross-zonal capacity due to remedial actions in Article 10 of the Proposal;
  - d) rules for calculating cross-zonal capacity, including rules for efficiently sharing power flow capabilities of CNEs among different bidding zone borders for the CNTC approach in Article 11 of the Proposal; and
  - e) where the power flows on critical network elements are influenced by cross-zonal power exchanges in different CCRs, the rules for sharing the power flow capabilities of critical network elements among different CCRs in order to accommodate these flows, in Article 12 of the Proposal.
- (45) Since the Agency deemed it necessary to define the Nordic LT CCM as a CCM applying a flow-based approach, the Agency deleted Article 11 of the Proposal describing rules for calculating cross-zonal capacity, including rules for efficiently sharing power flow capabilities of CNEs among different bidding zone borders for the CNTC approach and introduced a separate Article with a mathematical description of the calculation of power transfer distribution factors for the flow-based approach to comply with the general requirement of Article 21(b)(v) of the CACM Regulation.
- (46) The Proposal does not meet the general requirements of Article 21(b)(ii) of the CACM Regulation since it does not include rules for avoiding undue discrimination between internal and cross-zonal exchanges, but solely mentions in its Recital (16) that '*Rules for avoiding undue discrimination are only relevant when allocation of cross-zonal capacity in a long term time frame takes place, hence this is considered only relevant for TSOs allocating long-term transmission rights*'. The Agency does not agree with this statement as capacity calculation methodology should be independent on the decisions of regulatory authorities whether TSOs will allocate long-term transmission rights or not. Therefore, Recital (16) of the Proposal is insufficient to meet the requirement under Article 21(b)(ii) of the CACM Regulation. Therefore, the Agency addressed rules for avoiding undue discrimination between internal and cross-zonal exchanges in Article 4 of the adopted LT CCM as presented in Annex I.
- (47) The Proposal meets the general requirement of Article 21(1)(c) of the CACM Regulation, as it includes, in its Article 14, a methodology for the validation of cross-zonal capacity.

- (48) The Proposal meets the requirements of Article 10(7) of the FCA Regulation, referring to Article 21(3) of the CACM Regulation, as it includes, in its Article 15, a fallback procedure for the case where the initial capacity calculation does not lead to any results<sup>5</sup>.

*5.2.1.3. Assessment of the requirements for consultation*

- (49) The draft proposal was consulted with stakeholders from 16 November to 17 December 2018.
- (50) The supporting document to the Proposal describes, in its last chapter, the comments received from stakeholders, assesses them and explains why comments have or have not been taken into account. The explanatory document was submitted and published together with the Proposal.
- (51) Therefore, the Proposal has been subject to a public consultation in accordance with Article 6 of the FCA Regulation and complies with Article 4(12) of the FCA Regulation.

*5.2.1.4. Proposed timescale for implementation*

- (52) The Proposal partially fulfils the requirements of Article 4(8) of the FCA Regulation with regard to the proposed timescale for implementation of the LT CCM.
- (53) Article 19 of the Proposal states that the LT CCM for the Nordic CCR shall be implemented after the implementation of the common grid model in accordance with Article 18 of the FCA Regulation, the single allocation platform in accordance with Article 48 of the FCA Regulation and the coordinated capacity calculator (CCC) in accordance with Article 21(2) of the FCA Regulation in the Nordic CCR. Additionally, the same Article lists requirements, which need to be met before the LT CCM for the Nordic CCR can be implemented.
- (54) While the Proposal describes necessary preconditions and requirements for the implementation of the LT CCM of the Nordic CCR, it does not state by which time the methodology shall be implemented and therefore does not provide a sufficiently clear and enforceable timeline. In fact, the Agency believes that these prerequisites are not necessary. First, the Agency does not see the need to make the implementation of the LT CCM conditional on the implementation of the single allocation platform, since the latter is already implemented. Furthermore, as the CCC designated according to Article 27(2) of the CACM Regulation shall be established within 4 months after the decision on the CCM for the Nordic CCR in accordance with Article 20 of the CACM Regulation and the CCC should also calculate the long-term cross-zonal capacities for the Nordic CCR, listing the establishment of the CCC as a requirement

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<sup>5</sup> Although the CACM Regulation refers to ‘does not lead to any results’, the Agency understands this to mean ‘does not lead to the final results (i.e. cross-zonal capacities) for all market time units’.

for the LT CCM is not necessary as long as the LT CCM needs to be implemented at least for months after the decision on the CCM for the Nordic CCR in accordance with Article 20 of the CACM Regulation. Finally, the implementation of the LT CCM should not be conditional on the implementation of the long-term common grid model in accordance with Article 18 of the FCA Regulation, since in case of delays in the latter, the Nordic TSOs should apply a transitional solution (e.g. regional long term common grid model) for LT CCM. To provide an implementation timeline, the Agency deemed it necessary to amend Article 19 of the Proposal by introducing an implementation deadline of 12 months after the CCM for the Nordic CCR has been implemented for both the day-ahead and intraday time frames in accordance with Article 20 of the CACM Regulation.

- (55) In addition to the provision of an implementation timeline, the Agency deemed it necessary to add an additional paragraph, describing the requirements for the implementation process, which also reflect the requirements listed in Article 19(2) of the Proposal.

*5.2.1.5. Description of the expected impact on the objectives of the FCA Regulation*

- (56) The Proposal generally fulfils the requirements of Article 4(8) of the FCA Regulation with regard to the description of the expected impact of the Nordic LT CCM on the objectives of the FCA Regulation.
- (57) Recitals (10) to (15) of the Proposal describe the expected impact of the proposed Nordic LT CCM on the objectives listed in Article 3 of the FCA Regulation. All the objectives set in Article 3 of the FCA Regulation are addressed in the recitals, except for the objective of promoting efficient long-term cross-zonal trade with long-term cross zonal hedging opportunities for market participants in accordance with Article 3(a) of the FCA Regulation and the objective of ensuring fair and non-discriminatory treatment of TSOs, the Agency, regulatory authorities and market participants in accordance with Article 3(d) of the FCA Regulation.
- (58) The Agency added a description of the impact on the objective referred to in Article 3(a) and (d) of the FCA Regulation and improved the description of the impact on other objectives where it was inadequate.

*5.2.2. Assessment of the requirements for the capacity calculation inputs*

- (59) Articles 11 to 14 of the FCA Regulation provide requirements for the capacity calculation inputs mainly by referring to the requirements in the corresponding Articles of the CACM Regulation. These involve reliability margin, operational security limits and contingencies, generation shift keys and remedial actions used in capacity calculation. For LT CCM where security analysis based on multiple scenarios is applied, Article 23(2) additionally refers to Article 29 of the CACM Regulation, which includes, in its paragraph 1, the requirement for TSOs to provide the CCC with the above mentioned capacity calculation inputs. While the common grid model is also considered as a capacity calculation input for capacity calculation where security analysis based on multiple scenarios is applied, the methodology governing its

establishment is defined in the common grid model methodology pursuant to Article 22 of the FCA Regulation and therefore falls outside the scope of the LT CCM.

*5.2.2.1. Methodology for reliability margin*

- (60) Article 3 of the Proposal aims to address the requirements of Article 11 of the FCA Regulation, which refers to the requirements set out in Article 22 of the CACM Regulation. The Proposal applies a reliability margin depending on whether long-term transmission rights are issued on a bidding zone border or not. The Proposal specifies that for bidding zone borders where no long-term transmission rights are issued, the reliability margin shall be set to zero, while for other bidding zone borders it shall be set at the value assessed in the day-ahead capacity calculation.
- (61) To provide compliance with Article 22(3) of the CACM Regulation, requiring common harmonised principles for deriving the reliability margin, the Agency deemed it necessary to introduce a common method determining the reliability margin on all bidding zone borders of the Nordic CCR. Since the uncertainty in long-term capacity calculation shall be taken into account by the application of different scenarios on long-term capacity calculation, the Agency, in consultation with the Nordic TSOs, amended Article 3 of the Proposal to ensure that the reliability margin for long-term capacity calculation is set to zero for all CNECs and combined dynamic constraints in all long-term capacity calculation time frames in the Nordic CCR.
- (62) Further, the Agency deemed it necessary to amend Article 3 of the Proposal to ensure the provision of the reliability margin by the TSOs to the CCC in accordance with Article 29(1) of the CACM Regulation.

*5.2.2.2. Methodology for operational security limits*

- (63) Articles 4 and 5 of the Proposal aim to address the requirements of Article 12 of the FCA Regulation, which refers to the requirements set out in Article 23(1) and (2) of the CACM Regulation, which requires that TSOs apply the same operational security limits and contingencies that are used in operational security analysis, or, if this is not the case, that TSOs describe in the CCM the particular method and criteria they use to determine operational security limits and contingencies used for capacity calculation. These requirements relate to the choice of CNEs, contingencies and operational security limits applicable for CNEs. Article 4 of the Proposal specifies the methodology for calculating the applicable operational security limits, whereas Article 5 of the Proposal specifies the methodology for determining contingencies.
- (64) The Proposal partially fulfils the requirements of Article 23(1) and (2) of the CACM Regulation. The Proposal requests to apply the same operational security limits as in the operational security analysis pursuant to Article 25 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation ('SO Regulation') and the list of contingencies used in operational security is established pursuant to Article 33 of the SO Regulation. The Proposal however does not include a methodology for determining critical network elements to which these operational security limits are applied and contingencies can be linked to.

Therefore, the Agency deemed it necessary to amend the Proposal as described in the following recitals.

- (65) To provide more clarity, the Agency rearranged the two Articles, starting with the methodology for determining critical network elements and contingencies, followed by the Article on the methodology for determining operational security limits, which are applied to these capacity network elements associated with a contingency.
- (66) To introduce a CNEC selection, the Agency significantly amended and extended the content of Article 5 of the Proposal by replacing it with Article 4 of the adopted LT CCM as presented in Annex I. The first paragraph of this Article 4 obliges each Nordic TSO to define a list of CNEs, which shall include all cross-zonal elements and only those internal network elements which are defined by the provisions in the paragraphs 5 to 7 of Article 4 of the adopted LT CCM as presented in Annex I following the rules aimed at avoiding undue discrimination between internal and cross-zonal exchanges as described in Section 5.2.3.2 below. Until these provisions can be met, all internal network elements in the Nordic CCR may be defined as CNEs. Paragraphs 2 to 4 of Article 4 of the adopted LT CCM as presented in Annex I describe the selection of contingencies by each Nordic TSO and the establishment of a list of CNEs associated with these contingencies, as well as the provision of this list to the CCC by the Nordic TSOs.
- (67) Article 4 of the Proposal describes the methodology for determining operational security limits. This Article contains the same wording as the Article with the same headline in the Nordic CCM pursuant to Article 20 of the CACM Regulation. Since this specific Article in the Nordic CCM of the day-ahead time frame is undergoing a process of amendment in accordance with Article 9(13) of the CACM Regulation at the time of drafting this decision, the Agency closely consulted with all regulatory authorities and TSOs of the Nordic CCR on how to integrate these upcoming amendments so as to ensure the necessary consistency and compatibility between the different time frames in accordance with Article 10(3) of the FCA Regulation.
- (68) The main topic of discussion in this context was the provision of dynamic stability limits to the CCC as operational security limits pursuant Article 23 of the CACM Regulation. The calculation of these limits is a very complex and burdensome process currently performed individually by each TSO. After further clarification from the TSOs, the Agency understands that the Proposal assumes that dynamic stability limits would be transformed into maximum flow on CNEs, whereas CNEs can be defined as individual network elements or combinations of several network elements. The Agency disagrees with that understanding, since a CNE can only be understood as individual network element (see the definition in Article 2(8) of the Regulation (EU) No. 543/2013), whereas in case the dynamic stability limits would be transformed into maximum flow on a combination of network elements, such combination of network elements cannot be defined as a CNE. Nordic TSOs also explained that limits on a combination of several network elements are needed to take into account dynamic stability limits in case these cannot be efficiently transformed into maximum flow on individual network element. Therefore, some of these dynamic stability limits may be efficiently transformed into maximum flow on critical network elements, whereas

some others cannot and therefore can only be transformed into allocation constraints as defined in Article 23(3) of the CACM Regulation. Therefore, the Agency deemed it necessary to amend this Article by providing the relevant content deriving from the amendment process of the Nordic CCM of the day-ahead time frame (Article 5(2) of the adopted LT CCM as presented in Annex I) and introducing a new Article on allocation constraints as described in Section 5.2.2.3 below.

- (69) The Agency added paragraph 3 of Article 5 of the adopted LT CCM as presented in Annex I to clarify the conditions for defining maximum admissible current ( $I_{\max}$ ).
- (70) The Agency added one paragraph in both Articles providing methodologies pursuant to Article 12 of the FCA Regulation to comply with Article 27(4)(a) of the CACM Regulation as described in Section 5.2.6.2 below.

#### 5.2.2.3. *Methodology for allocation constraints*

- (71) The Proposal does not include a methodology for allocation constraints which is compliant with the provisions in the FCA regulation.
- (72) Following the discussions with TSOs and regulatory authorities described in Recital (67), the Agency deemed it necessary to introduce an Article on allocation constraints to the Proposal to address, in accordance with Articles 21(1)(a)(ii) and 23(3) of the CACM Regulation, the operational security limits related to dynamic stability. The Nordic TSOs informed the Agency that most of the dynamic stability limits cannot be transformed efficiently into maximum flow on specific CNECs, but these limits could be respected by defining limits on the sum of power flows on a combination of network elements. In such a case, the Agency deemed it relevant to define such limits as allocation constraints pursuant to Article 23(3)(a) of the CACM Regulation and called these allocation constraints the “combined dynamic constraints”. However, since TSOs were not able to provide sufficient justification for the use of such combined dynamic constraints and the methodology to calculate them, the Agency introduced them as a transitional measure until a more efficient solution, if available, can be implemented. As described in paragraphs 1 and 2 of Article 6 of the adopted LT CCM as presented in Annex I, such combined dynamic constraints may be used for a transition period of two years. If no more efficient solution can be found by eighteen months after the implementation of the LT CCM of the Nordic CCR, the Nordic TSOs may propose an amendment of the LT CCM of the Nordic CCR in accordance with Article 4(12) of the FCA Regulation, including a justification and a detailed methodology for calculating the allocation constraints as described in paragraph 3 of Article 6 of the adopted LT CCM as presented in Annex I.
- (73) For the transition period described in the Recital above, the Agency deemed it necessary to add a justification on why allocation constraints are required in the Nordic LT CCM. This was provided by introducing Annex 1 to the adopted LT CCM as presented in Annex I. This annexed justification was drafted in coordination with the Nordic TSOs and explains the physical constraints of the Nordic grid, which lead to the introduction of the combined dynamic constraints.

- (74) Additionally, the Agency added one paragraph to comply with Article 27(4)(a) of the CACM Regulation as described in Section 5.2.6.2 below.

*5.2.2.4. Methodology for generation shift keys*

- (75) Article 6 of the Proposal aims to address the requirements of Article 13 of the FCA Regulation, which refers to Article 24 of the CACM Regulation. Article 24(1) of the CACM Regulation requires that the LT CCM define a methodology to determine a common generation shift key for each bidding zone and scenario. The requirement set by Article 24(2) of the CACM Regulation, that generation shift keys represent the best forecast of the relation of a change in the net position of a bidding zone with a specific change of generation or load in the common grid model, taking into account in particular the information from the generation and load data provision methodology, is generally addressed by Article 6(1) of the Proposal. Article 6(2) of the Proposal specifies that the TSOs use the same strategy as for the day-ahead time frame in accordance with Article 7 of the Nordic CCM developed in accordance with Article 20(2) of the CACM Regulation to determine the generation shift keys. This complies with Article 10(3) of the FCA Regulation, which requires compatibility between the different CCMs. Article 6(3) of the Proposal specifies that the TSOs shall provide the generation shift key strategy to the CCC and therefore fulfils the requirement concerning the provision of the generation shift key to the CCC in accordance with Article 29(1) of the CACM Regulation.
- (76) The Proposal generally fulfils the requirements of Article 24 of the CACM Regulation. Nevertheless, the Agency observes that the Proposal fails to address the harmonisation of the generation shift keys. This is required by Article 21(4) of the CACM Regulation, which requires that all TSOs in each CCR use, as far as possible, harmonised capacity calculation inputs. While Article 6(1) of the Proposal provides common harmonised principles for calculating generation shift keys, Article 6(2) of the Proposal refers to the generation shift key strategy used in the day-ahead time frame, which is a list of eight different methods to determine a generation shift key and therefore not harmonised at a CCR level.
- (77) The Agency considers that, in the first step of the implementation of the CCM, a general harmonised principle is sufficient, but deemed it necessary to introduce an additional paragraph to harmonise further the generation shift keys and ensure compliance with Article 21(4) of the CACM Regulation. This should be provided by an amendment proposal from the Nordic TSOs in accordance with Article 4(12) of the FCA Regulation within eighteen months after the implementation of the LT CCM of the Nordic CCR including a harmonised generation shift key methodology, as described in Article 7(4) of the adopted LT CCM as presented in Annex I.
- (78) The Agency amended the structure and some wording of Article 6 of the Proposal and listed the relevant generation shift key strategies to which the Proposal refers, to provide more clarity and present the CCM as a complete and independent methodology. Additionally, the Agency added one paragraph to comply with Article 27(4)(d) as described in Section 5.2.6.2 below.

*5.2.2.5. Methodology for remedial actions in long-term capacity calculation*

- (79) Article 7 of the Proposal aims to address the requirements of Article 14 of the FCA Regulation, which refers to the requirements set out in Article 25 of the CACM Regulation in relation to remedial actions taken into account in the long-term capacity calculation.
- (80) Article 7(1) of the Proposal describes the provision of remedial actions by each Nordic TSOs to the CCC, which shall be coordinated between the TSOs. Article 7(2) of the Proposal addresses the selection of non-costly remedial actions. Therefore, the Proposal fulfils the requirements of Article 25(1), (2), (3) and (5) of the CACM Regulation.
- (81) Article 25(6) of the CACM Regulation and Articles 10(3) and 14 of the FCA Regulation address the requirement aiming to ensure that remedial actions used in the CCM are the same for all capacity calculation time frames, taken into account their technical availabilities. Since this requirement is not addressed by the Proposal, the Agency deemed it necessary to add one paragraph to comply with this requirement. The Nordic TSOs shall ensure that the remedial actions taken into account in the LT CCM are also included in the CCMs of the following time frames to the extent that they are still expected to be available.
- (82) Defining remedial actions for longer time frames is a challenging requirement as it requires identifying remedial actions which are available for the whole period for which the long-term capacity calculation is being performed. The Nordic TSOs informed the Agency that defining exact available remedial actions is very difficult in the long-term time frame. Instead, it is easier for TSOs to define the increase of cross-zonal capacity that is available taking into account the combination of remedial actions, which assumes that not all remedial actions are available all the time, but a combination of remedial actions would always ensure a certain percentage of increase in cross-zonal capacities. To accommodate this option, the Agency introduced a new paragraph providing that TSOs may, in addition to the data on exact available remedial actions, provide to the CCC also a minimum value for the flow increase on a CNEC resulting from a combination of available remedial actions. Such minimum flow should be provided to the CCC and estimated by the Nordic TSOs for remedial actions which might be uncertain as a single measure but, in a combination, have a very high probability of being available. The CCC would in turn respect this minimum value when calculating the impact of remedial actions on the flow increase on CNECs.
- (83) As Article 7(3) of the Proposal may suggest that costly remedial actions will never be taken into account in the Nordic LT CCM, the Agency clarified that this may not hold true in case the calculated cross-zonal capacities are negative on certain CNECs. The Agency clarified in Article 15(7) that, when setting negative cross-zonal capacities to zero, TSOs may implicitly take into account other remedial actions than the ones defined explicitly as capacity calculation inputs (also costly ones). A similar implicit assumption is made when defining the minimum increase of flow due to remedial actions pursuant to Article 8(5) and Article 13(2), as well as in capacity validation pursuant to Article 18(4)(c) of the adopted LT CCM as presented in Annex I. In all

these cases, implicit assumptions on remedial actions taken into account in long-term capacity calculation may go beyond the non-costly remedial actions.

- (84) To provide more clarity, the Agency deemed it necessary to amend the structure and wording of Article 7 of the Proposal.

*5.2.2.6. Provision of information on previously allocated capacities*

- (85) To ensure the complete provision of all the required inputs for the long-term capacity calculation, the Agency deemed it necessary to add one Article describing the provision of data on previously allocated capacities by the Nordic TSOs to the CCC.

*5.2.3. Assessment of the requirements for the capacity calculation process*

- (86) Article 10 and the Articles in Section 4 of Chapter I of the FCA Regulation address the capacity calculation process. These Articles provide requirements on the capacity calculation process and refer to Articles 21(1)(b), 27 and 29 of the CACM Regulation, which address the necessary content and steps of the capacity calculation process for the day-ahead and intraday capacity calculation.

*5.2.3.1. Mathematical description of the capacity calculation approach*

- (87) Article 8 of the Proposal aims to provide a mathematical description of the applied capacity calculation approach in accordance with Article 21(1)(b)(i) of the CACM Regulation. Since the mathematical description in Article 8 of the Proposal mainly applies the sequential steps of a flow-based approach, as laid out in Article 29(7) of the CACM Regulation, instead of the sequential steps of the proposed coordinated net transmission capacity approach as laid out in Article 29(8) of the CACM Regulation, the Proposal does not fulfil the provisions following the requirements of Article 21(1)(b)(i) of the CACM Regulation.

- (88) For this reason and as described in Recitals (34) and (35), the Agency deemed it necessary to change the capacity calculation approach to be used from a coordinated net transmission capacity approach to a flow-based approach to comply with Article 29 of the CACM Regulation. This approach provides sequential calculation steps for the flow-based approach. This change aims to minimise the amendments to the Proposal<sup>6</sup> and follows the general objective of the CACM Regulation to apply a flow-based approach in highly meshed networks. However, some amendments need to be made to establish a fully compliant flow-based methodology, including flow-based parameters as an output for the subsequent allocation of long-term cross-zonal capacities. These and other necessary changes will be described in the recitals below.

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<sup>6</sup> Changing the Proposal to comply with Article 29(8) of the CACM Regulation would require more significant revisions of the Proposal

- (89) The Agency deemed it necessary to provide a clearer structure to this section of the Proposal, by dividing Article 8 into different Articles aligned with the sequential steps described in Article 29(7) of the CACM Regulation. To support this structure, the Agency also included in this section the content of Article 18 of the Proposal that describes the capacity calculation process.
- (90) Paragraphs 1 to 3 of Article 8 of the Proposal define CNTC as the approach used in the LT CMM of the Nordic CCR. These paragraphs refer to Article 18 of the Proposal describing the capacity calculation process and describe the inputs and outputs of the capacity calculation process. The Agency amended the content of these paragraphs and of Article 18 of the Proposal and structured them in a new Article 10 of the adopted LT CCM as presented in Annex I. The necessary amendments describe the used flow-based capacity calculation process and provide the complete list of capacity calculation inputs and outputs which are the flow-based parameters.
- (91) Paragraphs 4 to 6 of Article 8 of the Proposal describe the calculation of power transfer distribution factors ('PTDFs') in accordance with Article 29(7)(b) of the CACM Regulation. The Agency provided the description of the PTDF calculation covered by these paragraphs under the new Article 11 of the adopted LT CCM as presented in Annex I. Furthermore, the Agency improved clarity of these provisions and their consistency with the Agency's Decision 02/2019 without changing the meaning in substance. To this end, the Agency found it necessary to provide additional clarity on how to take into account HVDC network elements and how to calculate the maximum zone-to-zone PTDF of a CNEC, which is required to comply with Article 29(3)(b) of the CACM Regulation.
- (92) The Proposal does not fulfil the requirement of Article 29(3)(b) of the CACM Regulation, which requires the CCC to ignore critical network elements that are not significantly influenced by changes in bidding zone net positions. To meet this requirement, the Agency introduced Article 12 in the adopted LT CCM as presented in Annex I defining the final list of CNECs for the long-term capacity calculation. This Article was consulted with all Nordic TSOs and provides a minimum threshold of the maximum zone-to-zone PTDF below which all CNECs shall be removed from the list of CNECs. This threshold ensures that CNECs having the maximum zone-to-zone PTDF below 5% are not limiting cross-zonal capacities, but TSOs may decide to exclude also CNEC with a higher maximum zone-to-zone PTDF, which would further increase cross-zonal capacities.

*5.2.3.2. Rules for avoiding undue discrimination between internal and cross-zonal exchanges*

- (93) The Proposal does not fulfil the requirement of Article 21(1)(b)(ii) of the CACM Regulation as it does not include rules for avoiding undue discrimination between internal and cross-zonal exchanges.
- (94) Recital (16) of the Proposal mentions the rules on avoiding undue discrimination between internal and cross-zonal exchanges pursuant to Article 21(1)(b)(ii) of the CACM Regulation. This Recital states that rules for avoiding undue discrimination are only relevant when allocation of cross zonal capacity in the long-term timeframe

takes place. The Agency does not share this interpretation as capacity calculation methodology should not be conditional on the subsequent allocation of long-term cross-zonal capacities and the decisions of regulatory authorities pursuant to Article 30 of the CACM Regulation. Also, rules on avoiding undue discrimination between internal and cross-zonal exchanges should be respected in case of using the long-term capacity calculation only as a forecast of cross-zonal capacities, since it should reflect the future available cross-zonal capacities in the day-ahead time frame, which should also be subject to such rules.

- (95) Therefore, the Agency deemed it necessary to delete Recital (16) of the Proposal and introduced specific rules on avoiding undue discrimination between internal and cross-zonal exchanges. In its Decision No 02/2019, the Agency adopted the rules on avoiding undue discrimination between internal and cross-zonal exchanges by applying two specific interventions in capacity calculation:
- (a) The selection of CNECs focusing on efficiency of including internal network elements in capacity calculation; and
  - (b) The application of minimum available margin on CNECs (minRAM) to ensure that a minimum portion of capacity on CNECs is made available for cross-zonal trade.
- (96) With regard to the application of min RAM in the long-term capacity calculation, the Agency notes that the provisions of Article 16(8) of the Regulation (EU) 943/2019 apply particularly to the capacity calculation methodologies established pursuant to the CACM Regulation. Furthermore, the Agency did not receive during the proceedings any concern from TSOs and regulatory authorities that, in the absence of such measure, the long-term cross zonal capacities would be too low. For this reason, the Agency did not deem it necessary to apply such a measure in the present Decision.
- (97) With regard to the selection of CNECs, the Agency notes that the efficiency of such a process remains equally important in the long-term capacity time frame as in the day-ahead and intraday ones. Most importantly, a long-term capacity calculation methodology needs to contribute to the efficient long-term operation and development of the electricity transmission system (Article 3(g) of the FCA Regulation) and to provide non-discriminatory access to cross-zonal capacity (Article 3(c) of the FCA Regulation). In addition, the determination of CNECs has to satisfy the general requirement of Article 16(1) of the Regulation (EU) 943/2019 that network congestion problems should be addressed with non-discriminatory market-based solutions, which give efficient economic signals to the market participants and transmission system operators involved.
- (98) For the above reasons, the Agency adopted in the present Decision very similar rules for the selection of CNECs as in the Decision No 02/2019. To this end, the Agency introduced paragraphs 5 to 7 in Article 4 of the adopted LT CCM as presented in Annex I, which ensure that internal network elements should not limit cross-zonal capacity, unless this is economically more efficient than other available remedies and minimises the negative impacts on the internal market in electricity or if it is needed

to ensure operational security. While avoiding the use of internal network elements and therefore the reduction of cross-zonal capacities in the capacity calculation, an economic efficiency criterion allows to include internal network elements in capacity calculation if TSOs are able to demonstrate that including them is economically the most efficient solution to address congestion on the internal network element. When demonstrating such efficiency, TSOs should consider alternative solutions such as the application of remedial actions, the reconfiguration of bidding zones and investments in network infrastructure.

- (99) However, as the methodology for such a demonstration for a LT CCM still needs to be established, which may require significant effort and time for TSOs, the Agency deemed it reasonable to provide a transitional solution during which TSOs need to establish a methodology to analyse which congestions on internal network elements are most efficiently addressed with capacity calculation and allocation. For this purpose, the Agency added an obligation on TSOs to develop a proposal for amendment of the LT CCM within eighteen months after its implementation. In this proposal, the TSOs should define a methodology for the selection of internal network elements, which may continue to be included in capacity calculation. This methodology should enable analyses demonstrating the economic efficiency of internal network elements while diligently exploring all the alternatives sufficiently in advance taking into account their required implementation time.

#### *5.2.3.3. Rules for taking into account previously allocated cross-zonal capacity*

- (100) Article 9 of the Proposal describes the rules for taking into account previously allocated cross-zonal capacities pursuant to Article 29(8)(e) of the CACM Regulation. While this Article would fulfil the requirement of Article 29(8)(e) of the CACM Regulation when using a CNTC approach, the Agency deemed it necessary to amend it in order to adapt it to the used flow-based approach and to comply with Article 29(7)(c) of the CACM Regulation. To do so, the Agency introduced a formula describing the conversion of previously allocated cross-zonal capacities into the required flows on a CNEC level. Since cross-zonal capacities are previously allocated in the form of options for a specific direction, only positive zone-to-zone PTDFs can be multiplied by previously allocated cross-zonal capacities to calculate the relevant flow per each CNEC.

#### *5.2.3.4. Rules on the adjustment of power flows on critical network elements or of cross-zonal capacity due to remedial actions*

- (101) The Proposal aims to address the requirements of Articles 21(1)(b)(iv), 25 and 29(8)(b) of the CACM Regulation by describing the purpose of the use of remedial actions in Article 10 of the Proposal and the effect of remedial actions on the RAM of a CNE in Article 8(7) of the Proposal. While Article 8(7) of the Proposal is already describing the adjustment of the remaining margin at the CNE level as required by Article 29(7)(f) of the CACM Regulation when applying the flow-based approach, the described process in the Proposal does not provide sufficient clarity, since Article 10 of the Proposal does not explain the rules on this adjustment of CNEs due to remedial actions pursuant to Article 21(1)(b)(iv) of the CACM Regulation, but solely the

general goal of increasing cross-zonal capacities by using remedial actions. Therefore, the Proposal is not fully compliant with the requirements in Article 21(1)(b)(iv) of the CACM Regulation.

- (102) To provide the required clarity and compliance with Articles 21(1)(b)(iv), 25 and 29(7)(f) of the CACM Regulation, the Agency deemed it necessary to amend Article 10 of the Proposal by describing the aim and functioning of applying remedial actions, as well as the process of calculating the effect of remedial actions on the flow on each CNEC. The Agency also clarified that the calculated adjustment should not be lower than the minimum flow increase in case such value has been provided by TSO(s) as described in recital (82).

*5.2.3.5. Calculation of the available margin on critical network elements before validation*

- (103) Article 8(7) and (8) and Article 11 of the Proposal describe the last step of capacity calculation process before validation. While Article 8(7) of the Proposal follows Article 29(7)(f) of the CACM Regulation by adjusting the RAM with the flow from remedial actions on each CNE, Articles 8(8) and 11 of the Proposal describe the extraction of NTC values from a flow-based domain and the following deduction of already allocated capacities and the reliability margin. Following the change to a flow-based methodology, the Agency deleted Articles 8(8) and 11 of the Proposal and included the calculation of the RAM in a new Article 15 of the adopted LT CCM as presented in Annex I.

- (104) Article 15 of the adopted LT CCM as presented Annex I describes the calculation of the RAM for each CNEC. Paragraphs 1 to 3 of this Article describe how the operational security limits are used by the CCC to calculate the maximum flows for each CNE pursuant to Article 29(7)(a) of the CACM Regulation. Paragraphs 4 and 5 of this Article address the requirement pursuant to Article 29(7)(d) of the CACM Regulation. As a first step to meet this requirement, paragraph 4 defines the reference flow for each CNEC, which represents the flow under each scenario in the CGM. Paragraph 5 explains how to calculate a linear approximation of the flow on each CNEC without any cross-zonal exchanges in each scenario by using the reference flow, the PTDFs and net positions of bidding zones from each scenario. The requirements of Article 29(7)(e) and (d) of the CACM Regulation are addressed by paragraph 6 of the same Article by providing a formula by which the RAM is calculated, by taking the maximum admissible flow for each CNEC and adjusting the available margin of each CNEC with the flows due to previously allocated capacities, reliability margin, remedial actions and the reference flow of a scenario without any cross-zonal exchanges.

*5.2.3.6. Rules for sharing the power flow capabilities of the critical network elements among different capacity calculation regions*

- (105) Article 12 of the Proposal aims to address the requirement of Article 21(1)(b)(vii) of the CACM Regulation by describing rules for sharing the power flow capabilities of CNEs among different CCRs. This Article states that the bidding zone borders of neighbouring CCRs shall be included in the LT CCM of the Nordic CCR to calculate,

in coordination with neighbouring CCCs, the cross-zonal capacities on these bidding zone borders. The lower cross-zonal capacity value between the one calculated in the Nordic CCR and the one calculated in the neighbouring CCR would then be used for capacity allocation on these bidding zone borders of the neighbouring CCR. While the process in Article 12 of the Proposal explains the rules for sharing the power flow capabilities of CNEs in the Nordic CCR with neighbouring CCRs, such rules may not be fully compliant with the CACM Regulation since they imply that the capacity calculation methodology adopted in one CCR may impact cross-zonal capacities on bidding zone borders of another CCR, despite the fact that such CCR has a separate methodology for capacity calculation for these bidding zone borders that needs to be approved by all relevant regulatory authorities of that CCR.

- (106) Therefore, the Agency deemed it necessary to amend the text of Article 12 of the Proposal to provide clarity on two aspects. First, TSOs of the Nordic CCR may indeed calculate cross-zonal capacities in neighbouring CCRs together with cross-zonal capacities within the Nordic CCR. However, the cross-zonal capacities calculated in this way for the neighbouring CCRs may affect final cross-zonal capacities available for capacity allocation in these CCRs if this is explicitly allowed within the capacity calculation methodology of the neighbouring CCR. This ensures that such cross-regional impact is approved by all competent regulatory authorities of both interdependent CCRs and therefore respects the competences of TSOs and regulatory authorities established in the FCA Regulation.

#### 5.2.4. Assessment of the requirements for the capacity validation

- (107) Article 14 of the Proposal aims to address the requirements set in Article 15 of the FCA regulation, which refers to Article 26 of the CACM Regulation. The Proposal generally fulfils the requirements of Article 26(1) and (3) of the CACM Regulation by describing the general procedure of the validation process performed by the Nordic TSOs and the CCC in Article 14(1) and (2) of the Proposal, which allows the Nordic TSOs to reduce cross-zonal capacity to ensure operational security. Article 14(3) of the Proposal generally fulfils the requirements of Article 26(5) of the CACM Regulation by requiring the CCC to report the reductions made in the validation process to the Nordic regulatory authorities. Article 14(4) of the Proposal generally fulfils the requirement of Article 26(4) of the CACM Regulation by addressing the general requirement to coordinate with neighbouring CCCs during capacity calculation and validation.
- (108) The Agency deemed it necessary to introduce some small amendments to Article 14 of the Proposal for the validation of results of a flow-based capacity calculation and deemed it necessary to add four paragraphs to clarify the necessary steps of the validation process. One paragraph explains the possible reasons for a change of the capacity calculation results during capacity validation, which can be to ensure operational security, to correct a mistake in input data or to reflect the change of available cross-zonal capacities due to expected available remedial actions, which specific single technical availability cannot be ensured at the time of the long-term capacity calculation. Two additional paragraphs clarify the steps for calculating the impact of the applied validation. The remaining additional paragraph ensures the

provision of a justification for an applied validation to follow the objective in Article 3(f) in the FCA Regulation.

5.2.5. Assessment of the requirement for the fallback procedures

(109) Article 15 of the Proposal is addressing the requirement for the fallback procedure pursuant to Article 10(7) of the FCA Regulation, which further refers to Article 21(3) of the CACM Regulation. The Proposal generally fulfils the requirement for a fallback procedure. Nevertheless, the Agency deemed it necessary to amend this Article to adapt the described procedure in order to be applicable to the chosen flow-based approach and provided some clarifications and simplifications to the text.

5.2.6. Assessment of other requirements

5.2.6.1. *Transparency and publication of information*

(110) Article 17 of the Proposal aims to address the objective of ensuring and enhancing the transparency and reliability of information as defined by Article 3(f) of the CACM Regulation. This Article defines the requirements for the information to be published by the Nordic TSOs.

(111) The Proposal partly archives the objective set in Article 3(f) of the CACM Regulation. Yet, to implement the required changes for the provision of a flow-based methodology and to provide clarity and further enhance the transparency and the provision of reliable information pursuant to the objective set in Article 3(f) of the CACM Regulation, the Agency deemed it necessary to amend Article 17 of the Proposal, by listing the most relevant information to be published by the Nordic TSOs, by requiring the publication of a handbook to provide a clear understanding of the published data, by introducing firm publication deadlines for all long-term capacity calculation time frames and by adding one paragraph allowing Nordic regulatory authorities to request, in a coordinated manner, additional information if needed.

(112) The Agency introduced another paragraph allowing TSOs to anonymise information if such information is perceived as classified by national law applicable in the member state of the relevant region.

5.2.6.2. *Reviews and updates*

(113) The Agency deemed it necessary to introduce one additional Article on reviews and updates to comply with the requirements in Article 27(4) of the CACM Regulation and to follow the objective set in Article 3(f) of the FCA Regulation. The new Article summarises the necessary reviews of the inputs to the long-term capacity calculation, including firm time frames for their repeating execution and the procedure in case of possible updates.

**5.3. Transitional solution for the calculation and allocation of long-term cross-zonal capacities**

- (114) While a flow-based LT CCM provides flow-based parameters for the allocation of cross-zonal capacities, the Single Allocation Platform ('SAP') in accordance with Article 49 of the FCA Regulation is currently not able to support such allocation based on flow-based parameters. Therefore, the Agency deemed it necessary to introduce a new Article for a transitional solution for the calculation and allocation of long-term cross-zonal capacities which ensures the provision of available transmission capacity ('ATC') values to the SAP until the SAP is able to perform long-term capacity allocation based on flow-based parameters.
- (115) To describe the calculation of ATC values from flow-based parameters by the CCC, the Agency used the mathematical description of Article 8(8) of the Proposal, adapted it to fit the new Article. Since the mathematical description in Article 8(8) of the Proposal includes a set of functions which cannot be further defined by the Nordic TSOs at the time of drafting this decision, the Agency introduced two additional paragraphs to provide the necessary transparency concerning the underlying functions of this process before the time of their application. This should be ensured by the publication of a detailed description of the functions including its parameters by the Nordic TSOs at least two months before their application or any amendments to those. Further, the Nordic TSOs shall improve the description and definition of these functions in the context of a request for amendment of this methodology no later than eighteen months after its implementation.

**6. CONCLUSION**

- (116) For all the above reasons, the Agency considers the Proposal in line with the requirements of the FCA Regulation, provided that the amendments described in this Decision are integrated in the Proposal, as presented in Annex I to this Decision.
- (117) Therefore, the Agency approves the Proposals subject to the necessary amendments and to the necessary editorial amendments. To provide clarity, Annex I to this Decision set out the Proposal as amended and as approved by the Agency,

HAS ADOPTED THIS DECISION:

*Article 1*

The capacity calculation methodology for the long-term time frame of the Nordic capacity calculation region, developed pursuant to Article 10 of Regulation (EU) 2016/1719, is adopted as set out in Annex I to this Decision.

*Article 2*

This Decision is addressed to Energinet, Fingrid Oyj and Svenska kraftnät.

Done at Ljubljana on 30 October 2019.

**- SIGNED -**

*For the Agency*  
*Director ad interim*  
Alberto POTOTSCHNIG

Annexes:

Annex I – Long-term capacity calculation methodology of the Nordic capacity calculation region

Annex Ia – Long-term capacity calculation methodology of the Nordic capacity calculation region (track-change version, for information only)

Annex II – Evaluation of responses to the public consultation on the proposal for long-term capacity calculation methodology of the Nordic capacity calculation region (for information only)

*In accordance with Article 28 of Regulation (EU) 2019/942, the addressees may appeal against this Decision by filing an appeal, together with the statement of grounds, in writing at the Board of Appeal of the Agency within two months of the day of notification of this Decision.*