European Network of Transmission System Operators for Electricity



ACER Decision on Nordic Market-based application methodology: Annex I

Style Definition

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Methodology on the application of the Nordic CCR market-based allocation process of

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-Nordic Market-based Application methodology

# cross-zonal capacity for the exchange of balancing capacity for the Nordic LFC Block

in accordance with Article 38(1) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

**5 August 2020** 

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Energinet, Fingrid, Statnett and Svenska kraftnät proposal for the establishment of common and harmonised rules and processes for the exchange and procurement of balancing capacity and for the application of a market-based allocation process in accordance with Article 33(1) and Article 38(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

December 2019

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Energinet, Fingrid, Statnett and Svenska kraftnät proposal for the establishment of common and harmonised rules and processes for the exchange and procurement of balancing capacity and for the application of a market-based allocation process in accordance with Article 33(1) and Article 38(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017

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Nordic Market-based Application methodology

Energinet, Fingrid, Statnett and Svenska kraftnät, taking into account the following,

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#### Whereas

This document is a common proposal developed by the Transmission System Operators Energinet, Fingrid, Statnett, and Svenska kraftnät (hereinafter referred to as "TSOs") in the geographic area covering the Nordic synchronous area regarding a proposal for the establishment of common and harmonised rules and processes for the exchange and procurement of aFRR capacity in accordance with Article 33

- (1) This document provides for the application of a market-based allocation process in accordance with Article 38(1) of Commission Regulation (EU) 2017/2195 of 23 November establishing a guideline on electricity balancing (hereafter referred to as the "EB Regulation") and regarding a proposal for the application geographic area covering the load frequency control block of a market-based allocation process the Nordic synchronous area (hereafter referred to as the "Nordic LFC Block"), as specified in accordance with Article 38(1141(2) of the EBCommission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the "SO Regulation"). This proposal methodology is hereinafter referred to as the "Proposal Nordic Market-based Application methodology".
- (2) The ProposalThe Transmission System Operators of the Nordic LFC Block (hereafter referred to as the "TSOs") are considered the TSOs of the Nordic LFC block applying a market-based allocation process pursuant to Article 38(1) of the EB Regulation. Where the Nordic LFC Block encompasses both Union and third country TSOs, all Union TSOs in that synchronous area shall endeavour to conclude with the third country TSOs an agreement setting the basis for their cooperation.
- (2)(3) This Nordic Market-based Application methodology takes into account the general principles and goals set out in the EB Regulation as well as the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the "SO Regulation"), Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (hereafter referred to as the "CACM Regulation"), and Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (hereafter referred to as the "Electricity Market Regulation").
  - (3) The goal of the EB Regulation is to establish an EU-wide set of technical, operational and market rules to govern the functioning of electricity balancing markets. It sets out rules for the procurement of balancing capacity, the activation of balancing energy and the financial settlement of balance responsible parties. It also requires the development of harmonised methodologies for the allocation of cross zonal transmission capacity (hereafter referred to as "CZC") for balancing purposes. Such rules will increase the liquidity of short-term markets by allowing for more cross-border trade and for the more efficient use of the existing grid for the purposes of balancing energy.
  - (4) The TSOs are mutually willing to exchange aFRR capacity within the Nordic synchronous area and have developed common and harmonised rules and processes for the exchange and procurement of aFRR capacity. The exchange of aFRR capacity is Market-based on a TSO-TSO model taking into account the available CZC and the FRR dimensioning rules in accordance with Article 157 of the SO Regulation.

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Nordic Market-based Application methodology

- (5) The TSOs will set the capacity procurement process and aFRR capacity bids will be submitted to the system implementing the capacity procurement optimisation function. Consistent with Article 58(3) of the EB GL and the EB GL's aims as stated its Article 3, this optimisation function shall minimise the overall procurement costs of all jointly procured balancing capacity and enhance the efficiency of balancing and of European and national balancing markets. The procurement of upward and downward aFRR capacity is carried out separately. To secure the exchange of aFRR capacity, the TSOs will allocate CZC using a market-based allocation process. The Proposal shall define the bidding zone borders included, the market timeframe, and duration of application.
- (6) The TSOs will allocate CZC for the exchange of aFRR capacity when CZC is calculated in accordance with capacity calculation methodologies developed pursuant to the CACM Regulation. When the TSOs implement a flow-based approach, this allocation will occur in accordance with a capacity calculation application, methodology developed in accordance with Article 20(2) of the CACM Regulation. As a transitional solution until the flow-based approach is implemented, the capacity calculation will be based on the current net transfer capacity (NTC) approach.
- (7) The TSOs will ensure both the availability of CZC and that the operational security requirements set out in the SO Regulation are met. This is ensured by market based allocation of CZC for the exchange of aFRR capacity and described in a separate proposal developed in accordance with Article 41(1) of the EB Regulation. In addition, the TSOs are not allowed to increase the reliability margin due to the exchange of aFRR capacity.
- (8) The TSOs shall publish, as soon as it becomes available, information on offered volumes and the prices of procured aFRR capacity, as well as information on the allocation and use of CZC for the exchange of aFRR capacity.
- (9) Article 5(5) of the EB Regulation requires that the expected impact of the Proposal oncontributes to achieve the objectives of the EB Regulation is described. The impact is presented below (points 10 to 16 of this Whereas Section).
- (10)(4) The Proposal contributes and does not in any way hamper the achievement of the objectivese of Article 3 of the EB Regulation. In particular, the Proposal Nordic Market-based Application methodology serves the following objectives:
  - (11)(a) The ProposalThe Nordic Market-based Application methodology fosters effectivecompetition, non-discrimination and transparency in balancing markets (Article 3(1)(a) of the
    EB Regulation) by ereating applying a process for allocation of cross-zonal capacity, which
    allows the formation of a regional Nordic market with common rules and processes for the
    procurement and exchange of aFRR capacity—and by applying a market. This Nordic Marketbased CZC allocation process for exchanging aFRR capacity. This ProposalApplication
    methodology, together with the proposal developed in accordance withmethodology for market-

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based cross-zonal allocation pursuant to Article 41 of the EB Regulation, and the common rules and processes pursuant to Article 33 of the EB Regulation creates a common Nordic system for the procurement and exchange of aFRR capacity. The market is based on common, transparent and non-discriminatory rules for submitting bids and selecting bids to cover aFRR capacity demand in each bidding zone efficiently. The aFRR capacity is settled to a clearing price for each bidding zone that signals the competitive bid price level in each market time unit and incentivises market players to bid according to their actual reservation cost.

(12)(b) The Proposal The Nordic Market-based Application methodology allows the allocation of cross-zonal capacity for the exchange of balancing capacity and therefore facilitates the coupling of local balancing capacity markets. By doing so, this methodology contributes to an efficient utilisation of balancing capacity resources across bidding zone borders in order to secure the volume of balancing capacity needed to maintain operational security. The application of the market-based cross-zonal capacity allocation process allows to allocate cross-zonal capacity for balancing capacity procurement in the respective region. Hence, this methodology enhances the efficiency of balancing as well as the efficiency of European and national balancing markets (Article 3(1)(b) of the EB Regulation) and contributes to the objective of integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security (Article 3(1)(c) of the EB Regulation). The bid selection of the Nordic market is based on an optimisation that seeks to cover demand in each bidding zone for aFRR balancing capacity by minimising total social costs including, where relevant, the foregone value of CZC to the energy market. This contributes to efficient balancing by making possible an efficient utilisation of aFRR resources across bidding zone borders in order to secure the volume of balancing capacity needed to maintain operational security. When a European balancing energy market is established, BSPs with aFRR capacity contracts will be committed to submit bids into the balancing energy market on equal terms with BSPs without aFRR balancing capacity ets, thereby contributing to the efficiency and integration of European markets. Simulations of the aFRR market with realistic assumptions and based on historic bid data from 2018 that take account of the impact of allocating CZC for the exchange of aFRR capacity on the day-ahead energy market show that the increase in socio-economic surplus created by the proposed aFRR capacity market dominates the negative impact on socio economic surplus in the day ahead energy market by a large margin, and thereby enhances overall efficiency.

(13)(c) The ProposalThe Nordic Market-based Application methodology allows the allocation of cross-zonal capacity for the exchange of balancing capacity. By allowing the exchange of balancing capacity, leading to a more efficient balancing capacity market and price formation, it also contributes to efficient investment signals in new capability for providing balancing capacity. Therefore, the Nordic Market-based Application methodology contributes to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union while facilitating the efficient and consistent functioning of the day-ahead, intraday and balancing markets (Article 3(1)(d)) of the EB Regulation) since it

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-Nordic Market-based Application methodology

establishes a Nordic market for aFRR capacity and implements a market based CZC allocation process. The Nordic aFRR capacity market provides price signals that reflect the scarcity of aFRR capacity in different bidding zones and the cost of allocating CZC for the exchange of aFRR capacity to these bidding zones. It thereby contributes to efficient investment in new capability for providing aFRR capacity. The implementation of a market based CZC allocation process ensures that the value of CZC to the day ahead energy market is considered properly in the determination of the efficient exchange of aFRR capacity and that the Nordic aFRR capacity market allows for the consistent functioning of the day ahead and intraday markets alongside the balancing markets.).

(14)(d) The ProposalThe Nordic Market-based Application methodology ensures that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity (Article 3(1)(e) of the EB Balancing) since the TSOs propose the establishment of a common aFRR capacity market for the entire Nordic region in which there is a market based allocation process for CZCRegulation) since it aims to apply a process which will foster liquidity for the procurement of balancing capacity in coupled balancing capacity markets while taking into account the impacts on the day-ahead market. The allocation of cross-zonal capacities by the market-based capacity allocation process provides a transparent input for the procurement of balancing capacity in an objective way and is based on market inputs from the balancing capacity and energy markets.

(15)(e) The ProposalThe Nordic Market-based Application methodology facilitates the participation of demand response including aggregation facilities and energy storage while ensuring that they compete with other balancing services on a level playing field and, where necessary, act independently when serving a single demand facility (Article 3(1)(f) of the EB Balancing) by establishing contributing to the establishment of a common Nordic market place for aFRR capacity in which the requirements for aFRR capacity products are designed such that they can also be fulfilled by demand response, aggregation facilities and energy storage.

(16)(f) The Proposal Nordic Market-based Application methodology facilitates and does not hampered the participation of renewable energy sources in the Nordic aFRR balancing capacity market to which this methodology is applied and thus supports the achievement of the European Union target for the penetration of renewable generation (Article 3(1)(g) of the EB Regulation).

(17) In conclusion, the Proposal contributes to the general objectives of the EB Regulation to the benefit of all market participants and electricity end consumers.

SUBMIT\_THE\_FOLLOWING\_PROPOSAL\_TO\_THE\_RELEVANT\_REGULATORY\_AUTHORITIES WITHIN THE NORDIC SYNCHRONOUS AREA:

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TITLE 1

**General provisions** 

#### Article 1

#### Subject matter and scope

- 1. The Proposal shall be considered This document establishes the common proposal from the TSOs for the establishment of common and harmonised rules and processes for the exchange and procurement of aFRR capacity (hereafter referred to as the "Nordic aFRR capacity market") in accordance with Article 33(1) of the EB Regulation including rules methodology, for the application of athe market—based CZCcross-zonal allocation process in accordance with Article 38(1)(b) of the EB Regulation for the exchange of balancing capacity pursuant to Article 33 of the EB Regulation.
- 4.—The Nordic Market-based Application methodology applies to the TSOs of the Nordic LFC block applying a market-based allocation process pursuant to Article 38(1) of the EB Regulation-
- The Proposal and covers the bidding zones and bidding zone borders of the Nordic synchronous area,
  which corresponds to an LFC block (hereafter referred to as "of the Nordic LFC Block") block as defined in accordance with Article 141(2) of the SO Regulation.
- The Nordic Market-based Application methodology covers the bidding zones borders, the market time frame, the duration of application and the methodology to be applied.

## Article 2 Definitions and interpretation

- 1. For the purposes of the <a href="Proposal-Nordic Market-based Application methodology">Proposal-Nordic Market-based Application methodology</a>, terms used in this<a href="Proposal-Nordic Market-based Application">Proposal-Nordic Market-Based Application</a>, article 2 of the EB Regulation,

  Article 3 of the SO Regulation and Article 2 of the CACM Regulation, Thethe Electricity Market

  Regulation, Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication
  of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European
  Parliament and of the Council (hereafter referred to as <a href="the-"transparency Regulation">the-"transparency Regulation</a>) and Directive
  (EU) 2019/944.
- 2. In addition, in this Proposal, the following terms shall have the meaning below:
  - a) "market time unit (MTU)" means, in this proposal, the market time unit applied in the day ahead market timeframe;
  - b) "prequalified balancing service provider (BSP)" means prequalified BSP in accordance with Article 18(5) of the EB-Regulation participating in the Nordic aFRR capacity market.
- 3.2. In the Proposal Market-based Application methodology, unless the context requires otherwise:
  - a)(a) the singular indicates the plural and vice versa;

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-Nordic Market-based Application methodology

b)(b) the table of contents and headings are inserted for convenience only and do not affect the interpretation of the Proposal; and this methodology;

(c) any reference to cross-zonal capacities shall include also the reference to allocation constraints as applied in the respective capacity calculation methodology pursuant to Article 20 of the CACM Regulation or Article 10 of the FCA Regulation;

e)(d) 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; and

(e) any reference to an Article without an indication of the document shall mean a reference to this\* methodology.

TITLE 2 Nordic

#### Market-based cross-zonal capacity application methodology

#### Article 3

# Notification process Market timeframe for application of the use of a market-based allocation process

1. The TSOs shall notify Transmission System Operator(s) located in the Nordic synchronous The market timeframe for application of this methodology shall be the balancing capacity timeframe between 07:00 CET (D-1) and 10:00 CET (D-1) and is applicable for the geographic area about the establishment of a Nordicand standard balancing capacity market products in accordance with Article 150 of the SO Regulation. This notification shall include the:

a) transmission system operators involved;

 expected date for the balancing capacity market\_methodology pursuant to Article 33(1) of the EB Regulation with the CZC.

b) The TSOs shall apply the methodology for market-based cross-zonal capacity allocation pursuant to enter into operation;

e) expected amountArticle 41(1) of power interchange duethe EB Regulation to the cross-zonal balancing capacity activation process;

d)2.reserve type and maximum volume of exchange of balancing capacity; and within the defined balancing capacity timeframe.

#### e) timeframeArticle 4

Application of the methodology for allocating cross-zonal capacity to the exchange of <u>aFRR</u> balancing capacity.

2-(a) The TSOs shall make the notification at least 3 months beforeallocate cross-zonal capacity to the CZC allocation process enters into operation exchange.

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TITLE

Nordic aFRR capacity market

# Article 4 Market timeframe for application of the allocation process and duration of application

- 1. The TSOs shall apply to the Nordic aFRR balancing capacity market a market-based CZG allocation process in accordance with the methodology for market-based cross-zonal capacity allocation pursuant to Article 41(1) of the EB Regulation on each bidding zone border of the Nordic CCR excluding the DK1-DK2 and DK1-SE3 bidding zone borders.
- The corresponding market based allocation of CZC shall be determined together with the
  procurement. For each bidding zone border pursuant to paragraph 1, the maximum volume of crosszonal capacity allocated to the exchange of aFRR capacity one day (D-1) prior to the delivery day.
- 3. The TSOs will develop a methodology for a co-optimised allocation process of CZC for the exchange of balancing capacity in accordance with Article 40 of the EB Regulation and will submit a proposal for the use of this processmethodology pursuant to Article 3841(1) of the EB Regulation together with an assessment on whether or not to apply the co-optimized allocation process as soon as this process is available for application by the TSOs.

#### **Article**

#### Prequalification of aFRR capacity

 Each BSP participating in the Nordic aFRR capacity market shall be prequalified in accordance with Articles 16 and 18(5) of the EB Regulation. Prequalified BSPs shall be eligible to submit aFRR capacity bids to the Nordic aFRR capacity market.

#### **Article**

#### High-level design of the aFRR capacity market

- The volume of aFRR capacity procured by TSOs consists of separate volumes for upward aFRR capacity and downward aFRR capacity. These volumes to be procured are defined in accordance with Article 11.
- 2. There will be a daily auction of aFRR capacity for each MTU.
- 3. Prequalified BSPs will submit their aFRR capacity bids to the common aFRR capacity market.
- 4. The gate closure time for prequalified BSPs to submit aFRR capacity bids will be at most one day prior to the delivery day and fall between 00:00 and 12:00 CET. A single gate closure time will apply to the whole market, such that all prequalified BSPs must submit bids by the same point in time.

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-Nordic Market-based Application methodology

- 5. The TSOs will announce the gate closure time to submit aFRR capacity bids, or of any changes to this gate closure time. Such announcements will be made at least four weeks before they take effect, excepting instances when the gate closure time is exceptionally delayed or else the bidding window is reopened. In these instances, the TSOs will announce these changes as seen as they are able to.
- 6. In choosing the gate closure time, TSOs will endeavour to set the gate closure time as close to real time as possible subject to the need to both ensure the resilience of the balancing capacity market, for example in the event of insufficient bids or a technical failure, and fulfil the TSOs' obligations, notably in relation to maintaining the operational security of the power system and providing information on the CZC capacity available to the electricity market.
- The procurement optimisation function selects aFRR capacity bids and allocates CZC for the purpose of exchanging aFRR capacity in accordance with Article 12.
- 8. Accepted bids shall be notified to the relevant BSPs no later than 30 minutes after completion of the procurement. The publication of the procurement results shall be in accordance with Article 14.
- 9. Accepted aFRR capacity bids shall be fully available for aFRR energy activation during the delivery period. In the event that a BSP transfers its aFRR capacity obligation in accordance with Article 34 of the EB Regulation, this obligation to be fully available for aFRR energy activation during the delivery period will also be transferred as part of the capacity obligation.

### Article Characteristics of products and bids

1. The aFRR capacity bid shall include the following information:

- a) price of the bid in €/MW;
- b) volume of the bid in MW;
- e) MTU(s) for which the bid is valid;
- d) bidding zone for which the bid is issued;
- e) divisibility of the bid; and
- f) direction of the bid (upward balancing capacity or downward balancing capacity).
- 2. The aFRR capacity bid shall comply with the following requirements:
  - a) minimum bid volume equals 1 MW;
  - b) the volume of the bid shall be divisible by 1 MW;
  - c) only a bid with a bid volume of less than 50 MW can be indivisible; and
  - d) the full activation time of the bids shall be set by each TSO in accordance with the methodologies pursuant to article 157 and 159 of the SO GL Regulation.
- The following links between bids may be used:

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Nordic Market-based Application methodology

- a) bids with the same volume, direction and prices of consecutive MTUs can be linked, meaning that all these bids must either be rejected or accepted;
- an upward bid can be linked with a downward bid of the same MTU, meaning that both bids must either be rejected or accepted; and
- e) it will be possible to present a single upward or downward bid as a bid curve, where only one bid of the group of bids constituting the bid curve can be selected. Bid curves cannot be combined with the linking of upward and downward bids.

Articla

#### 8

#### aFRR capacity bid submission

- 1. Prequalified BSPs or service providers delegated by these prequalified BSPs are allowed to submit bids for aFRR capacity.
- 2. Bids shall be submitted by the gate closure time as described in Article 6
- The bid format and communication protocol shall be in accordance with ENTSO E data exchange
  recommendations. The latest versions of the recommendations shall be made available on the TSOs'
  washeitee.
- 4. The TSOs shall be able to view all bids submitted for the Nordic aFRR capacity market.

#### Article

#### \_\_9

#### Settlement of procured aFRR capacity

- 1. BSPs will receive an availability payment for each MTU in which their aFRR capacity bid is accepted. This availability payment is equal to the accepted bid volume multiplied by the clearing price for the relevant aFRR capacity product in the relevant bidding zone, as defined in paragraphs 2 and 3.
- 2. The clearing price in a bidding zone will equal the greatest of:
  - a) the highest accepted bid for that product in that bidding zone, and,
  - b) where CZC capacity is reserved to import aFRR capacity into the relevant bidding zone, the price of any aFRR capacity imported into the zone, which equals the sum of the clearing price of the aFRR product in the exporting bidding zone and the CZC reservation cost assumed to enable the transfer, as defined in Articles 5 and 6 of the TSOs' proposal for a market-based allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation.
- 3. Notwithstanding paragraph 2, where, for a given cross zonal border, the implied market value of CZC for the exchange of energy, as defined in Article 5 of the TSOs' proposal for a market based allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation, is zero and the absolute limit on the volume of aFRR capacity that can be reserved, as defined in Article 4 of the TSOs' proposal for a market-based allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation, is not binding in the market solution, the connected bidding zones across the relevant border shall have the same clearing price. In these cases, the bidding zone with the highest price, as determined by the rules in paragraph 2, among the set of bidding zones that must have the same price sets the price in all these bidding zones.

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Nordic Market-based Application methodology

#### **Article**

#### Methodology for allocating CZC for Nordic aFRR capacity market

- The TSOs shall ensure both the availability of CZC and that the operational requirements set out in the SO Regulation are met by applying a market-based allocation process for allocating CZC to the balancing timeframe. The TSOs shall allocate CZC to the Nordic aFRR capacity market in accordance with a methodology pursuant to Article 41(1) of the EB Regulation.
- 2. The TSOs shall allocate CZC for the exchange of aFRR capacity only if CZC capacity is shall. be calculated in accordance with the capacity calculation methodology developed pursuant to the CACM Regulation. As a transitional solution until a flow-based approach, which is the approved capacity calculation methodology for CCR Nordic, has been implemented in the CCR Nordic, the TSOs are allowed to allocate CZC for the exchange of balancing capacity by applying the current capacity calculation method, i.e. the net transfer capacity (NTC) method. Article 20(2) of the CACM Regulation.
- 3. The cross-zonal capacity allocated CZC forto the exchange of aFRR capacity balancing capacity used as output of the cross-zonal capacity allocation function pursuant to Article 41(1) of the EB Regulation shall be taken into account <del>in as previously allocated cross-zonal capacity for the</del> day-ahead <del>and intraday</del> capacity calculation timeframe as previously allocated CZC in accordance with a methodology pursuant to Article 20(2) of the CACM Regulation.
- 4.—The TSOs shall regularly assess whether the CZCcross-zonal capacity allocated for the exchange of aFRR balancing capacity is still needed for that purpose. When GZC-cross-zonal capacity allocated for the exchange of aFRR balancing capacity is no longer needed, such CZC cross-zonal capacity shall no longer be included as previously allocated GZCcross-zonal capacity in the calculation of GZC.

Article

#### The demanded volume of aFRR capacity

- The TSOs shall define the reserve<u>cross-zonal</u> capacity requirements in accordance with Article 32(1) of the EB Regulation.
- Each TSO is responsible for demanding the aFRR capacity necessary to fulfil the requirements set in accordance with Article 32(1) of the EB Regulation.
- Each TSO shall inform the BSPs and other TSOs about the demanded volume of aFRR capacity in the bidding zone(s) of their control area, at the latest two hours before the gate closure time of the aFRR capacity market.

Article

### Procurement optimisation function and bid selection for aFRR capacity

- The inputs to the capacity procurement optimisation function are:
  - a) demand of aFRR capacity for each bidding zone;
  - maximum procurement volume of aFRR capacity for a specific bidding zone, or a set of bidding zones (This can be included if necessary due to operational security requirements pursuant to Article 165(3)(g) of the SO Regulation);

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Nordic Market-based Application methodology

- e) minimum procurement volume of aFRR capacity for a specific bidding zone, or a set of bidding zones (This can only be used if the dimensioning process according to Article 157(2)(g) of the SO Regulation requires such limitations);
- d) bids from BSPs for each bidding zone;
- e) the forecasted market value of CZC for each bidding zone border in the day ahead market timeframe defined in accordance with Article 5 of the TSOs' proposal for a market based allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation:
- f) the mark-ups to the forecasted market value of CZC for each bidding zone border in the dayahead market timeframe defined in accordance with Article 6 of the TSOs' proposal for a marketbased allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation; and,
- g) The maximum volume of CZC that can be allocated to the exchange of balancing capacity defined in accordance with Article 4 of the TSOs' proposal for a market-based allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation.
- In the capacity procurement optimisation process, bid selection together with the CZC allocation are
  optimised to minimise the socioeconomic costs of procurement given the constraints defined in Article
  12(1). The socioeconomic costs of procurement are defined as follows, summing across all bids, bidding
  zones, borders and directions.

 $\sum_{\text{t.a.b.}} (\text{bidcost}_i \times \text{bidvolume}_i \times \text{selected}_i + \text{czccost}_{ab} \times \text{czcreservation}_{ab})$  (Equation 1)

#### Where:

bidcost: is the bid cost of bid i:

bidvolume, is a valid increment of bid i;

selected; is boolean denoting whether or not the bid increment is accepted;

ezecost<sub>ab</sub> is the cost of reserving CZC from bidding zone a to bidding zone b, which is equal to the sum of the forecasted market value of the CZC and any applicable mark-up as defined in Articles 5 and 6 of the TSOs' proposal for a market based allocation process of CZC for the exchange of balancing capacity pursuant to Article 41 of the EB Regulation; and,

 $\frac{\text{ezeroservation}_{ab} \text{ is the volume of CZC capacity from bidding zone a to bidding zone b reserved for the exchange of aFRR capacity.}\\$ 

- 3. The outputs from the capacity procurement optimisation function are:
  - a) accepted bids for each bidding zone (selected; in Equation 1); and,
  - b) allocated CZC for the exchange of aFRR capacity for each bidding zone border (ezeroservationabin Equation 1)
- The TSOs shall not increase the reliability margin calculated in accordance with Article 22 of the CACM Regulation due to the exchange of aFRR capacity.

Article

TSO-TSO settlement in the aFRR capacity market



—Nordic Market-based Application methodology,

- TSOs shall pay for the volume of aFRR capacity required by their bidding zones, as described in Article
- Where aFRR capacity volumes are transferred across a bidding zone border, as shown by the
  corresponding reservation of CZC to enable the transfer, and the border separates two bidding zones
  controlled by different TSOs, settlement between the TSOs shall be conducted as described in paragraph
  3.
- 3. The TSO importing aFRR capacity will pay the TSO exporting aFRR capacity an amount equal to the volume of aFRR capacity transferred multiplied by the average clearing price for the relevant aFRR capacity product in the two bidding zones, as defined in Article 9.

Article 14

#### Publication of information for the exchange of aFRR capacity

- The TSOs shall publish the following information for aFRR capacity in accordance with Article 12(3) of the EB Regulation:
  - a) offered volumes as well as offered prices of procured aFRR capacity bids for each bidding zone. The bid data shall be anonymised. This information shall be published to the market once the market clearing results are available and no later than one hour after the accepted bids have been notified to the relevant BSPs;
  - b) the allocated CZC for the exchange of aFRR capacity for each MTU on the following day. This information shall be published after the aFRR capacity market clearing results are available together with the forecasted market values of CZC used in the aFRR capacity allocation process at the latest one hour before the single day ahead coupling gate closure time, as defined in accordance with Article 47(2) of the CACM Regulation. The information includes:
    - i. date and time when the decision on allocation was made;
    - ii. period of the allocation;
    - iii. volumes allocated; and
    - iv. market values used as a basis for the allocation process in accordance with Article 39 of the EB Regulation.
  - e) the information on the use of allocated CZC capacity for the exchange of aFRR capacity at the latest one week after the use of allocated CZC:
    - i. volume of allocated and used CZC for each MTU and for each bidding zone border;
    - ii. volume of released CZC for subsequent timeframes for each MTU and for each bidding zone border; and
- iii. 4. \_\_estimated realised costs and benefits of the allocation process. The TSOs will, based on the aFRR capacity bid data, estimate the reduction in procurement costs compared to fulfilling the reserve requirements of the demanded FRR without allocating CZC for exchange of aFRR capacity. These estimated costs and benefits will be published as values for each day for the Nordic aFRR capacity market.

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#### TITLE 3

#### Final provisions

#### Article 155

# Publication and implementation of the <u>ProposalNordic Market-based Application</u> <u>methodology</u>

- 1. The TSOs shall publish the Proposal Nordic Market-based Application methodology without undue delay after the relevant regulatory authorities in the Nordie Capacity Calculation Region have approved the Proposal or a decision has been taken made by the European Union Agency for the Cooperation of Energy Regulators in accordance with Article 5(6), Article 5(7), Article 6(1) and Article 66(2) of the EB Regulation.
- 2. The TSOs shall implement the Proposalthis methodology no later than 12 months after the approval by the relevant regulatory authorities in the Nordic Capacity Calculation Region or a decision has been taken by made by the European Union Agency for the Cooperation of Energy Regulators in accordance with Article 6(2) of the EB Regulation but only when the cross zonal capacity on all bidding zone borders of the Nordic CCR is calculated in accordance with the capacity calculation methodologies developed pursuant to the CACM Regulation.
- 2-3. The methodology defined pursuant to Article 4 shall be applied until an amendment to this methodology is approved. From the Agency formoment when the Cooperation of Energy Regulatorsco-optimised cross-zonal capacity allocation process in accordance with Article 40 of the EB Regulation is implemented, TSOs shall consider an amendment of this methodology and consider to change to the cooptimised cross-zonal capacity allocation process for the exchange of balancing capacity.
- 3. The TSOs shall implement the Proposal in co-operation, enabling procurement and exchange of aFRR capacity in the Nordic LFC block.

#### Article 166 Language

The reference language for the Proposalthis Nordic Market-based Application methodology shall be English. For the avoidance of doubt, where TSOs need to translate the Proposalthis Nordic Market-based Application methodology into their national language(s), in the event of inconsistencies between the English version published by TSOs in accordance with Article 7 of the EB Regulation and any version in another language, the relevant TSOs shall, in accordance with national legislation, provide the relevant national regulatory authorities with an updated translation of the Proposal.

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