European Network of Transmission System Operators for Electricity

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~~All TSOs' of CCR Nordic proposal for a methodology for a market-based allocation process of cross-zonal capacity for the exchange of balancing capacity in accordance with Article 41(1) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing~~

Style Definition ... [1]

~~December 2019~~

ACER Decision on Nordic CCR Market-based allocation process methodology: Annex I

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Methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Nordic CCR

in accordance with Article 41(1) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

5 August 2020

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Contents

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Nordic Market-based cross-zonal allocation methodology

Whereas

This document is a common proposal developed

(1) This document provides a methodology for a market-based allocation process of cross-zonal capacity for the exchange of balancing capacity (hereafter referred to as the "methodology for market-based capacity allocation") in accordance with Article 41(1) of Commission Regulation (EU) 2017/2195 of 23 November establishing a guideline on electricity balancing (hereafter referred to as the "EB Regulation") by all Transmission System Operators (hereafter referred to as the "TSOs") infor the geographic area covering the Nordic capacity calculation region (hereafter referred to as the "CCR Nordic CCR") as defined in accordance with Article 15 of 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") regarding a proposal for the methodology for a market based allocation process of cross zonal capacity (hereafter referred to as "CZC") for the exchange of balancing capacity in the CCR Nordic. This proposal is hereinafter referred to as the "Proposal".").

(2) The ProposalThe methodology for market-based capacity allocation takes into account the general principles and goals set out in the EB Regulation as well as Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the "SO Regulation"), 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 CZC for balancing purposes. Such rules will increase the liquidity of short-term markets by allowing for more cross-zonal trade and for the more efficient use of the existing grid for the purposes of balancing energy.

(4)(3) The TSOsThe Transmission System Operators of the Nordic CCR (hereafter referred to as the "TSOs") intend to exchange balancing capacity and have for that reason developed common and harmonised rules and processes for this exchange and procurement. in accordance with Article 33 of the EB Regulation. To secure this exchange of balancing capacity, the TSOs willmay submit an application in accordance with Article 38(1) of the EB Regulation to allocate CZCcross-zonal capacity across timeframes using athe market-based allocation process. The Proposal pursuant to Article 41 of the EB Regulation. This methodology shall define the details of a market-based cross-zonal capacity allocation methodologyprocess.

(5) The Proposal shall include the following elements: (i) the notification process for the use of the market-based allocation process; (ii) a detailed description of how to determine the actual market value of CZC for the exchange of balancing capacity, and the forecasted market value of CZC for the exchange of energy; (iii) a detailed description of the pricing method, the firmness regime and the sharing of congestion income for the

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CZC that has been allocated to bids for the exchange of balancing capacity via the market-based allocation process; and (iv) the process to define the maximum volume of allocated CZC for the exchange of balancing capacity.

(6) CZC allocated shall be limited to 10% of the available capacity between the respective bidding zones, based on the latest available CZC calculated for the day-ahead timeframe. For new interconnectors this will be 10% of the total installed technical capacity of these new interconnectors. The CZC allocated for the exchange of balancing capacity will be used only for the exchange of balancing capacity and the associated exchange of balancing energy.

(7)(4) TheThis methodology for market-based capacity allocation is based on an optimisation process that seeks to minimisemaximise the socioeconomic costssum of procuring actual economic surplus from the procurement of balancing capacity, taking account of and the implied costforecasted estimation of reserving CZCeconomic surplus for the exchange of balancing capacitysingle day-ahead coupling. Consistent with Article 58(3) of the EB GL and the EB GL'sRegulation's aims as stated in its Article 3, this optimisation process minimises the overall procurement costs of all jointly procured balancing capacity so as to enhanceenhances the efficiency of balancing and of European and national balancing markets. This process takes the forecasted market value of CZC capacity for the exchange of energy as a cost input. The pricing method, the firmness regime and the sharing of congestion income for CZCcross-zonal capacity that has been allocated for the exchange of balancing capacity ensures fairequal treatment with CZCcross-zonal capacity allocated for the exchange of energy.

(8)(5) The optimisation process used to allocate CZC cross-zonal capacity effectively trades- off the use of CZC cross-zonal capacity for the exchange of balancing capacity with this CZC's potential alternative the use of cross-zonal capacity for the exchange of energy. This process also, simultaneously, selects the balancing capacity bids that will be accepted. in the day-ahead market. The forecasted market value of CZCcross-zonal capacity for the exchange of energy that is used in this process is calculated based on the latest available day-ahead energy prices in the connecting bidding zones as described in detail in Article 5.. The value of CZC cross-zonal capacity for the exchange of balancing capacity is handledcalculated within the optimisation process itself and informedformed by the actual balancing capacity bids submitted by balancing service providers (("BSPs)."). The TSOs have reviewed the accuracy and efficiency of the proposed approach used to forecast the value of CZCcross-zonal capacity for the exchange of energy in preparing this proposal and will, as part of the allocation processes' implementation, collect information on and review the efficiency of the forecasting methodology used. This review will include a comparison of the forecasted and actual market values of CZCcross-zonal capacity for the exchange of energy.

(9) The TSOs shall publish, as soon as it becomes available, information on CZC methodology for market-based capacity allocation for the exchange of balancing capacity as well as information on the use of CZC for the exchange of balancing capacity.

(10) Article 5(5) of the EB Regulation requires that the expected impact of the Proposal on the objectives of the EB Regulation is described. The impact is presented below (points (11) to (15) of this Whereas Section).

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(11)(6) The Proposalgenerally contributes and does not in any way hamperto the achievement of the objectives of Article 3 of the EB Regulation. In particular, the Proposal methodology for market-based capacity allocation serves the following objectives:

(12) The Proposal fosters effective competition, non-discrimination and transparency in balancing markets (Article 3(1)(a) of the EB Regulation) by creating the regional NordicThe methodology for market-based capacity marketallocation enables the allocation of cross-zonal capacity for the exchange of balancing capacity to a region with common and harmonised rules and processes for the procurement and exchange of balancing capacity and by applying a market-based CZC allocation process for exchanging balancing capacity. This Proposal together with the common and harmonised rules and processes for the exchange and procurement of balancing capacity developed in accordance with Article 33 of the EB Regulation creates a common Nordic system for the procurement and exchange of, and therefore facilitates the coupling of local balancing capacity. The market is based on common, transparent and non-discriminatory rules for submitting bids and selecting bids to cover demand in each markets. By doing so, this methodology contributes to an efficient utilisation of balancing capacity resources across bidding zone efficiently. The balancing 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 playersborders in order to bid accordingsecure the volume of balancing capacity needed to their actual reservation cost.

(13)(a) The Proposalmaintain operational security. The market-based cross-zonal capacity allocation process is using submitted bids from BSPs and a transparent forecasting method for estimating the value of cross-zonal zonal capacity for the single day-ahead coupling to allocate cross-zonal capacity for balancing capacity procurement in the respective region. Hence, this methodology for market-based capacity allocation fosters effective competition in a non-discriminatory and transparent way in balancing markets (Article 3(1)(a) of the EB Regulation), 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 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 balancing capacity 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 balancing capacity contracts will be committed to submit bids into the balancing energy market on equal terms with BSPs without balancing capacity contracts, 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

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Nordic Market-based cross-zonal allocation methodology

~~capacity market dominates the negative impact on socio-economic surplus in day-ahead market by a large margin, and thereby enhances overall efficiency.~~

~~(14)~~(b) ~~The Proposal~~The methodology for market-based capacity allocation takes into account the impact on the day-ahead market by using the forecasted market value of cross-zonal capacity in the day-ahead market for the objective to maximise the total economic surplus of both the energy and balancing capacity market. 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 methodology for market-based capacity allocation 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 establishes a Nordic market for balancing capacity and implements a market-based CZC allocation process. The Nordic balancing capacity market provides price signals that reflect the scarcity of balancing capacity in different bidding zones and the cost of allocating CZC for the exchange of balancing capacity to these bidding zones. It thereby contributes to efficient investment in new capability for providing balancing capacity.~~) of the EB Regulation).

~~(15)~~(c) ~~The Proposal~~The methodology for market-based capacity allocation 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~~Regulation) since ~~the TSOs propose the establishment~~it will foster liquidity for the procurement of ~~a common~~ balancing capacity in coupled balancing capacity markets while taking into account the impacts on the day-ahead market ~~for the entire Nordic region in which there is a~~. The allocation of cross-zonal capacities by the market-based capacity allocation process provides a transparent input for ~~CZC.~~the procurement of balancing capacity in an objective way and is based on market inputs from the balancing capacity and energy markets.

~~(16)~~(d) ~~In conclusion,~~The methodology for market-based capacity allocation does not negatively impact the ~~Proposal contributes to the general~~ objectives in accordance with Articles 3(1)(f) and (g) of the EB Regulation ~~to the benefit of all market participants and electricity end consumers~~.

~~SUBMIT THE FOLLOWING PROPOSAL TO ALL REGULATORY AUTHORITIES OF THE CCR NORDIC:~~

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TITLE 1
General provisions

Article 1
Subject matter and scope

1. The Proposal shall be considered as This document is the common proposal from the TSOs methodology for the application of a market-based allocation process of cross-zonal capacity for the exchange of balancing capacity in accordance with Article 41(1) of the EB Regulation taking into account. It is based on the calculationcomparison of the actual market value of CZCcross-zonal capacity for the exchange of balancing capacity and the forecasted market value of cross-zonal capacity for the exchange of energy in accordance with Article 39 of the EB Regulation.

2. The Proposal This methodology also includes the algorithm principles for the cross-zonal capacity allocation function.

3. This methodology for market-based capacity allocation covers the bidding zones and zone borders of the Nordic CCR.

4. The application of this methodology shall be subject to the methodology pursuant to Article 38(1)(b) of the EB Regulation, which shall define the bidding zone borders of the CCR Nordic as defined, the market timeframe and the duration of application.

2.5. Two or more TSOs willing to exchange balancing capacity by applying the market-based capacity allocation shall use a common and harmonised set of rules and processes for the exchange and procurement of balancing capacity in accordance with Article 15 of the CACM33(1) of the EB Regulation, and respecting the requirements set out in Article 32 of the EB Regulation.

3. The Proposal shall apply only for the exchange of balancing capacity.

4. The scope of the Proposal does not extend to the assignment of roles and responsibilities to specific parties. The governance framework for specific roles or responsibilities and TSO-TSO settlement rules are out of scope of the Proposal. These aspects shall be defined by the TSOs where required in accordance with Article 33 and Article 38 of the EB Regulation.

5. The implementation of the allocation of CZC using a market-based allocation methodology is a voluntary initiative by two or more TSOs or done at the request of their relevant regulatory authorities in accordance with Article 59 of Directive (EU) 2019/944 and is therefore not mandatory.

Article 2
Definitions and interpretation

1.6. For the purposes of the Proposalmethodology for market-based capacity allocation, terms used in this Proposalmethodology shall have the meaning of the definitions included in Article 2 of the EB Regulation, Article 3 of the SO Regulation and Article 2 of the CACM Regulation, Regulation (EU) 2019/943,Article 2 of the Commission Regulation (EU) 2016/1719 of 26 September establishing a guideline on forward capacity allocation (hereafter referred to as the "FCA Regulation"), Article 2 of the Electricity Regulation, Article 2 of the 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)

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No 714/2009 of the European Parliament and of the Council (hereafter referred to as "Transparency Regulation") and Directive (EU) 2019/944.

2.1. In addition, in the Proposal, unless the context requires otherwise, theThe following termsdefinitions shall have the meaning belowalso apply in this methodology:

1. "market time unit (MTU)" means the market time unit for the Nordic balancing capacity market, which equals the MTU applied in the day-ahead market timeframe;

2.(a) "'reference day"day' means the day which is used to define the forecasted market value of CZC; andcross-zonal capacity;

3.(b) "'mark-up"up' means an addition to the forecasted market value of CZC cross-zonal capacity calculated in order to take into account the uncertainty in the forecasted market value of CZCcross-zonal capacity during the applicationallocation of the cross-zonal capacity procurement optimisation function.;

(c) ' positive forecast error' means the positive difference in EUR/MWh between the market spread of the trading day and the market spread of the reference day, excluding the mark-up, thereby representing an underestimation of the initial forecasted market value for the exchange of energy used in the market based allocation process;

(d) 'cross-zonal capacity allocation function' means the functionality that optimises the allocation of cross-zonal capacity across the day-ahead market timeframe and the market timeframe for the exchange of balancing capacity or sharing of reserves;

(e) 'economic surplus from the exchange of balancing capacity or sharing of reserves' means the sum for the relevant time period of (i) the TSOs' surplus for the exchange of balancing capacity or sharing of reserves, (ii) the BSPs' surplus for the exchange of balancing capacity or sharing of reserves and (iii) the congestion income. The surplus for BSPs is the difference between the prices of the accepted balancing capacity bids and the balancing capacity price multiplied by the accepted volume of the balancing capacity bids. Surplus for TSOs is the difference between the technical price limit and the balancing capacity price multiplied by the volume of TSO demand; and

(f) 'TSO demand' means the balancing capacity volume to be procured and defined per scheduling area and bidding zone in accordance with Article 32(1) of the EB Regulation.

3.2. In the Proposalmethodology for market-based capacity allocation, unless the context requires otherwise:

a)(a) the singular indicates the plural and vice versa;

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

c)(d) any reference to legislation, regulation, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force.; and

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

TITLE 2

~~Proposal for a market~~Market-based allocation process of ~~CZC~~cross-zonal capacity for the exchange of balancing capacity

~~Article 3~~

Article 3

Principles for applying market-based cross-zonal capacity allocation process

1. The market based capacity allocation process shall be executed by the cross-zonal capacity allocation function and shall determine the amount of cross-zonal capacities to be allocated to the exchange of standard balancing capacity products or sharing of reserves following the objective in Article 8(4).
2. TSOs shall use standard balancing capacity products for frequency restoration reserves and replacement reserves pursuant to Article 25(2) of the EB Regulation and submit all balancing capacity bids from standard balancing capacity products to the capacity procurement optimisation function pursuant to Article 33(3) of the EB Regulation. TSOs shall not modify or withhold any balancing capacity bids and shall include them in the procurement process, except under conditions set out in Article 26 and Article 27 of the EB Regulation.
3. A single gate closure time shall apply for balancing capacity market where this methodology is applied irrespective of time zone differences, such that all BSPs have the same gate closure time. In accordance with Article 41(1) of the EB Regulation, this gate closure time shall be set not more than one day before the provision of the standard balancing capacity product, when applying the market-based allocation process.
4. The contracting period of standard balancing capacity bids exchanged shall be equal to or a multiple of the day-ahead market time unit and shall be less or equal to the total amount of day-ahead market time units of the trading day.
5. The validity period of standard balancing capacity bids exchanged with this market-based allocation process shall be equal to the day-ahead market time unit.
6. The settlement of the standard balancing capacity bids between each TSO and BSPs for bidding zones and scheduling areas between which cross-zonal capacity is allocated to the exchange of balancing capacity using this market-based allocation process shall be based on cross-zonal marginal pricing (pay-as-cleared).
7. According to Article 38(4) of the EB Regulation, cross-zonal capacities allocated to the exchange of standard balancing capacity products or sharing of reserves where this market-based allocation process is applied, shall be:
   (a) exclusively provided to the cross-border FRR control processes in accordance with Article 149 of the SO Regulation until the connection of the TSOs to the platforms pursuant to Article 19 to 21 of EB Regulation;

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(b) exclusively provided to the respective platform, pursuant to Articles 19 to 21 of the EB Regulation, of the standard balancing capacity product it was allocated for from the connection of the TSOs.

8. The process of releasing allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves shall be:

(a) coordinated by the cross-border control process in accordance with Article 149 of the SO Regulation until the connection of the TSOs to the platforms pursuant to Article 19 to 21 of EB Regulation;

(b) coordinated between the platforms for balancing energy pursuant to Articles 19 to 21 of the EB Regulation from the connection of the TSOs to these platforms.

Article 4

Notification process for the use of a market-based allocation process

1. ~~The TSOs shall~~ Each TSO intending to apply this market-based allocation process shall notify ~~Transmission System Operator(s)~~TSOs located in the Nordic synchronous area ~~about the establishment of a Nordic balancing capacity market~~ three months prior to entering into operation in accordance with Article 150 of the SO Regulation~~. This notification shall include the~~ and inform all stakeholders and all TSOs through an announcement on the ENTSO-E website, at least three months prior to entering into operation. This announcement on the ENTSO-E website shall include:

~~a)~~(a) ~~transmission system operators~~the TSOs involved;

~~b)~~(b) the expected date for the exchange of balancing capacity ~~market~~ pursuant to Article 33(1) of the EB Regulation with the ~~CZC~~market-based allocation process to enter into operation;

(c) the detailed description of the specifications, including the market timeframe, in accordance with Article 38(2) of the EB Regulation;

~~c)~~(d) the forecast of the average expected amount of frequency restoration power interchange due to the cross-zonal ~~balancing capacity~~FRR activation process or reserve replacement power interchange due to the cross-zonal RR activation process;

~~d) reserve type and~~ the maximum volume of ~~exchange of balancing~~allocated cross-zonal capacity~~; and~~

~~e)~~(e) ~~timeframe of the~~ for exchange of balancing capacity~~.~~ as defined pursuant to Article 5; and

~~2. The TSOs shall make the notification at least 3 months before the CZC allocation process enters into operation.~~

(f) the type of standard balancing capacity product which will be exchanged or shared.

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Article 4

~~Maximum~~5

Process to define the maximum volume of allocated ~~CZC~~cross-zonal capacity for the exchange of balancing capacity

1. ~~A maximum of 10 %~~In accordance with Article 41(1)(d) of the ~~forecasted CZC for each bidding zone border for~~EB Regulation, the ~~day-ahead timeframe shall be~~ process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity~~. The TSOs shall use the latest available CZC calculated~~ or sharing of reserves for the ~~day-ahead timeframe when setting the maximum volume of CZC for CZC~~cross-zonal capacity allocation~~:~~ optimisation function shall be as follows:

   (a) ~~CZC~~by default the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity shall be ~~used only~~ 10% of cross-zonal capacity for each bidding zone border calculated for the day-ahead timeframe in accordance with the capacity calculation methodologies developed pursuant to Article 20(2) of the CACM Regulation;

   ~~2.~~(b) to resolve a situation where the limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity in accordance with paragraph 1(a) is not sufficient to satisfy TSO demand in a bidding zone, a TSO may increase the percentage limit pursuant to paragraph 1(a) on the relevant bidding zone borders for the relevant day-ahead market time units. The limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity ~~and the associated~~shall only be increased to the point until the TSO demand is satisfied and maximum up to 20% of the calculated cross-zonal capacity calculated for day ahead market timeframe. If this maximum limit is still not sufficient to satisfy a TSO demand, a fall-back procedure pursuant to Article 7(4) shall be initiated. TSOs shall notify the regulatory authorities of the Nordic CCR about each increase of the limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing ~~energy~~ capacity above the threshold set in paragraph 1(a). This notification shall include at least the final volume percentage and value in MW of cross-zonal capacity allocated for the exchange of balancing capacity and the reasons for the shortage of balancing capacity bids in the importing bidding zone. The annual impact of such increases shall be reported pursuant to Article 12(5)(b);

   (c) ~~Article 5~~if increases pursuant to paragraph (1)(b) occur due to a structural local shortage of BSPs' bids for a standard balancing capacity product in a bidding zone, the limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity in accordance with paragraph (1)(a) may be increased by 2 percentage points on the bidding zone borders which required an increase of this limit. Such increase of the default limit on a bidding zone border shall be reported to stakeholders and the regulatory authorities of the Nordic CCR at least two weeks in advance of application. This process can be performed repeatedly until the maximum limit of 20% is reached. The applied default limits shall be published in accordance with Article 12(4).

2. The exchange of balancing capacity or sharing of reserves shall, in addition to the limit defined in accordance with paragraph 1, be limited by the rules for the exchange and sharing of reserves in accordance with Title 8, Chapter 1 and 2 of the SO Regulation through the:

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Nordic Market-based cross-zonal allocation methodology

(a) maximum procurement volume of balancing capacity per direction for a specific bidding zone, or a set of bidding zones due to operational security requirements pursuant to Article 165(3)(g) of the SO Regulation;

(b) minimum procurement volume of balancing capacity per direction for a specific bidding zone, or a set of bidding zones defined in accordance with the dimensioning process pursuant to Article 157(2)(g) of the SO Regulation.

Article 6

Determination of the forecasted market value of ~~CZC~~cross-zonal capacity for the exchange of energy in single day-ahead coupling

1. ~~The process used to determine the volume of CZC reserved for the exchange of balancing capacity, described further in Article 6, makes use of forecasted market values for CZC when~~ The initial forecasted market value of cross-zonal capacity used for the exchange of energy, defined for each direction, for each bidding zone border and for each day-ahead market time unit, shall be:

   (a) ~~A~~equal to the positive market spread for each day-ahead market time unit of the reference day for the direction of the positive market spread; or

   (b) equal to zero for each day-ahead market time unit of the reference day for the direction of the negative market spread or in case of zero market spread.

2. A mark-up will be added to the initial forecasted market value of ~~CZC used~~cross-zonal capacity calculated in accordance with paragraph 1, in order to take into account the uncertainty of the forecasted market value of cross-zonal capacity. This mark-up is defined for each direction as follows:

   (a) if there is a negative or zero market spread for the initial forecasted market value of cross-zonal capacity in accordance with paragraph 1, the mark-up will be 0.1 EUR/MWh; and

   (b) if there is a positive market spread, for the initial forecasted market value of cross-zonal capacity in accordance with paragraph 1, the mark-up will be 1 EUR/MWh.

3. If the average positive forecast error over the last 30 days, per bidding zone border and per direction, excluding the 5% hours with the highest positive forecast errors, is 1 EUR/MWh higher or lower than the mark-up applied the day before, the TSOs of this bidding zone border shall respectively increase or decrease the mark-up pursuant to paragraph 2(b) with 1 EUR/MWh for the respective direction. The mark-up for a positive market spread, can never be lower than the default value pursuant to paragraph 2(b) and never higher than 5 EUR/MWh. The updated mark-ups shall be published pursuant to Article 12(1).

4. No later than 12 months after approval of this methodology, the TSOs shall submit an amendment to this methodology based on one of the alternative principles pursuant to Article 39(5). This amendment shall at least include a calculation of a dynamic mark-up value, for each bidding zone border and for each direction, replacing paragraph 3 and 4, and shall be supported by an assessment that shows at least:

   (a) the accuracy of the forecasted market value when applying different ranges of historical time series as input data for determining the mark-ups, per bidding zone border and per direction;

   (b) the accuracy of the forecasted market value when applying different time intervals for defining and updating the mark-ups, per bidding zone border and per direction;

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(c) the accuracy of the forecasted market value when applying different reference days;

(d) the accuracy of the forecasted market value when applying additional relevant factors influencing demand and generation patterns in the different bidding zones;

(e) the estimated welfare effect for a range of confidence levels of the positive forecast errors, per bidding zone border and per direction.

2.5. The forecasted market value for the exchange of energy ~~is defined for each direction on each bidding zone border for each MTU, as follows.~~for each direction shall be equal to the sum of the initial forecasted market value pursuant to paragraph 1 and the mark-up pursuant to paragraph 2.

~~For CZC from bidding zone a to bidding zone b:~~

~~If $p_{at} < p_{bt}$, then $FMV_{abt} = p_{bt} - p_{at}$~~

~~If $p_{at} \geq p_{bt}$, $FMV_{abt} = 0$~~

~~Where:~~

~~p_{at} is the day-ahead energy market price for bidding zone a and MTU t on the reference day, and~~

~~FMV_{abt} is the forecasted market value of CZC used for the exchange of energy from bidding zone a to bidding zone b for MTU t.~~

3.6. The reference day shall be the ~~most recent~~previous day for which the clearing prices for each day-ahead market ~~timeframe~~timefra.me are available for each bidding zone.

4.7. The TSOs shall monitor the efficiency of the forecasting methodology~~, including a comparison of the forecasted and actual market values of CZC for the exchange of energy, and take appropriate action to ensure the accuracy of the forecast values~~. pursuant to Article 12(5).

Article ~~6~~7
Determination of the ~~allocated volume of CZC~~actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves

1. ~~The balancing capacity market~~ The actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves between the bidding zones where market based capacity allocation is applied, shall be:

(a) equal to the change of economic surplus from the exchange of balancing capacity or sharing of reserves per MW of cross zonal capacity allocated;

(b) defined per the day-ahead market time unit;

(c) calculated per standard balancing capacity product and per direction, separately;

~~1.~~(d) calculated based on the standard upward balancing capacity bids or standard downward balancing capacity bids submitted to the capacity procurement optimisation function ~~shall allocate CZC for the exchange of balancing capacity simultaneously with the selection of balancing capacity bids.~~pursuant to Article 33(3) of the EB Regulation; and

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(e) calculated based on TSO demand.

2. The actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves between bidding zones where market-based capacity allocation is applied shall be calculated based on the change of economic surplus due to the exchange of balancing capacity or sharing of reserves, resulting from the change of available cross-zonal capacities allocated to the market timeframe for the exchange of balancing capacity or sharing of reserves.

3. The TSOs shall not put a price on the TSO demand used in the market-based allocation process. TSOs may increase the TSO demand to select an indivisible bid, if such an increase would decrease the overall procurement costs for the respective standard balancing capacity product.

4. If the demand for a standard balancing capacity product of TSOs in a region where market-based cross-zonal capacity allocation is applied, exceeds the available amount of bids for the relevant standard balancing capacity product, while taking into account the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves in accordance with Article 5, a fall-back procedure shall apply. Such fall-back procedure shall be described in the methodology pursuant to Article 33(1) of the EB Regulation.

5. If a TSO demand for a standard balancing capacity product per bidding zone exceeds the available amount of locally submitted bids in the bidding zone for the respective standard balancing capacity product but the maximum volume of allocated capacity is enough to cover the deficit, the market-based capacity allocation shall be performed. To calculate the change of economic surplus from the exchange of balancing capacity or sharing of reserves in such a case, the technical price limit shall be used as a fictional clearing price in case of insufficient local bids.

Article 8
Determination of the allocated volume of cross-zonal capacity for the exchange of balancing capacity

1. The cross-zonal capacity allocation function shall determine the allocated volume of cross-zonal capacity for the exchange of balancing capacity.

2. The inputs to the algorithm for the cross-zonal capacity allocation function are:

   (a) TSO demand for each day-ahead market time unit, standard balancing capacity product, direction and for each bidding zone;

   (b) the list of balancing capacity bids from balancing service providers for each bidding zone, market time unit, standard balancing capacity product and direction sorted in order of their bid prices;

3. The constraints to the algorithm for cross-zonal capacity allocation function are:

   (a) the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity defined pursuant to Article 5(1); and

   (b) the minimum and maximum procurement volume of balancing capacity defined pursuant to Article 5(2).

4. The objective of the ~~balancing capacity market procurement~~ algorithm for the cross-zonal capacity allocation function shall be the maximisation, per trading day, of the sum of:

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(a) the economic surplus for single day-ahead coupling based on the forecasted market value for the exchange of energy pursuant to Article 6; and

(b) the economic surplus from the exchange of balancing capacity based on the actual market value for the exchange of balancing capacity pursuant to Article 7.

5. The output from the algorithm for the cross-zonal capacity allocation function, per standard balancing capacity product and direction and for each day-ahead market time unit is the available cross-zonal capacity allocated to the exchange of balancing capacity for each bidding zone border.

6. Each marginal volume of cross-zonal capacity shall be allocated to the exchange of energy in case the actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves pursuant to Article 7 is lower or equal to the forecasted market value of cross-zonal capacity for the exchange of energy pursuant to Article 6.

7. Netting for cross-zonal capacity allocated to the exchange of balancing capacity or sharing of reserves is not possible between:

(a) standard upward and downward balancing capacity bids;

(b) standard balancing capacity bids from different standard balancing capacity products.

Article 9
Firmness regime for the allocation of cross-zonal capacity

~~2.~~1. The cross-zonal capacity allocated to the exchange of balancing capacity shall be firm after the optimisation ~~function is to make sure that CZC is allocated to a market, i.e. the day-ahead or balancing market, so as to minimise the socioeconomic costs of procurement.~~by the cross-zonal capacity allocation function.

2. ~~In the~~ The procured upward balancing capacity bids or downward balancing capacity bids shall be firm after the capacity procurement optimisation ~~process, bid selection together with~~ function operated pursuant to Article 33(3) of the ~~CZC~~EB Regulation.

3. In the event of force majeure or emergency situations, curtailment of cross-zonal capacities which were allocated using the cross-zonal capacity allocation ~~are optimised to minimise the socioeconomic~~optimisation function shall be proportionally distributed between the affected cross-zonal capacities allocated for the exchange of energy and for the exchange of balancing capacity or sharing of reserves in accordance with Article 41(4) of the EB Regulation. TSOs may deviate from this principle by proposing a more cost efficient solution in the proposal pursuant to Article 33(1) of the EB Regulation.

4. Costs of ensuring firmness of cross-zonal capacity allocated for the exchange of balancing capacity or sharing of reserves shall include follow up costs of ensuring firmness of procured balancing capacity bids in accordance with paragraph 2, which are caused by the curtailment of firm cross-zonal capacity in the event of force majeure or emergency situations. These costs also include the additional costs from the procurement of balancing capacity due to the non-availability of the balancing capacity given the ~~constraints defined~~curtailment of cross-zonal capacity.

5. The costs of ensuring firmness shall be shared in accordance with the regional methodologies developed in accordance with Article ~~12 of the TSO's proposal~~74 of the CACM Regulation and

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Article 76 of the SO Regulation for the ~~establishment of common and harmonised rules and processes~~cases that fall within the scope of these methodologies.

6. Any costs of ensuring firmness which are outside the scope of the methodologies referred to in paragraph 6, shall be borne by the TSO requesting the curtailment.

Article 10
Price of cross-zonal capacity

1. TSOs allocating cross-zonal capacity for the exchange ~~and~~of balancing capacity or sharing of reserves applying the methodology for market-based capacity allocation shall calculate the cross-zonal capacity price for the volume of cross-zonal capacity that is allocated for the exchange of balancing capacity or sharing of reserves.

2. In case of coordinated net transmission capacity (CNTC) calculation approach in the day-ahead timeframe, the price of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves shall correspond in each direction to the difference between the balancing capacity prices of the procured standard balancing capacity product in each direction on each side of the connected bidding zone border.

3. In case of flow-based capacity calculation approach in the day-ahead timeframe, the cross-zonal capacity price resulting from the allocation of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves applying the methodology for market-based capacity allocation shall be based on shadow prices of critical network elements for each direction of the procured standard balancing capacity product.

Article 11
Sharing of congestion income from cross-zonal capacity

1. Congestion income from the allocation of cross-zonal capacity to the procurement and exchange of balancing capacity ~~and for~~is equal to the ~~application~~volume of ~~a~~cross-zonal capacity allocated to the exchange of balancing capacity multiplied by the price of cross-zonal capacity in accordance with Article 10.

2. The congestion income pursuant to paragraph 1 will be shared in accordance with the methodology of Article 73 of the CACM Regulation and in accordance with Article 41(4) of the EB Regulation.

Article 12
Publication of information

~~3.~~ The TSOs applying this market-based allocation process ~~in accordance with Article 33(1) and Article 38(1)~~ shall publish the following information on the allocation of ~~the EB Regulation. The socioeconomic costs of procurement include the cost of accepted balancing~~cross-zonal capacity ~~bids and the cost of reserving CZC~~ for the exchange of balancing capacity~~.~~

~~4. A mark-up will be added to the forecasted market value of CZC calculated in accordance with Article 5(3), in order to take into account the uncertainty of the forecasted market value of CZC. These mark-ups are defined as follows:~~

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a) if there is no forecasted price difference between two per bidding zones when calculating the forecasted market value of CZC in accordance with Article 5(3), the added mark-up on the forecasted market value of CZC will be 0.1 EUR/MWh; and

b) if there is a forecasted price difference between two bidding zones when calculating the forecasted market value of CZC in accordance with Article 5(3), the added mark-up on the forecasted market value of CZC will be 1 EUR/MWh.

5. The mark-up shall be added to the forecasted market value of CZC to be applied in the capacity procurement optimisation function.

Article 7
Firmness regime

1. Allocated CZC for the exchange of balancing capacity shall be firm after the selection of upward balancing capacity bids or downward balancing capacity bids by the capacity procurement optimisation function in accordance with Article 33(3) of the EB Regulation.

2. CZC for allocation shall be firm as soon as submitted to the balancing capacity procurement optimisation function.

3. If allocated CZC capacity is curtailed because of a force majeure situation, an emergency situation or an unplanned outage invoked by one or more TSOs, the TSO or TSOs within whose area of responsibility the situation has occurred or which has or have invoked a force majeure situation or an emergency situation shall reimburse or provide compensation for the period of force majeure, emergency situation or unplanned outage, in accordance with the following requirements:

   a) BSPs with accepted balancing capacity bids will not be subject to financial damage or financial benefit arising from an inability to supply balancing capacity as a result of the CZC capacity curtailment. This compensation will not reflect any changes in payments for the activation of balancing energy.

   b) Other TSOs that are required to procure additional balancing capacity in order to compensate for the curtailment of CZC will be entitled to the reimbursement of these additional costs unless this is not acceptable to all regulatory authorities of all compensated and compensating TSOs.

   In the event that reimbursement or compensation is to be provided by two or more TSOs, the TSOs shall share these costs jointly, unless another agreement is reached.

4. TSOs shall not increase the reliability margin calculated pursuant to Article 20 (2) of the CACM Regulation due to the exchange of balancing capacity for frequency restoration reserves.

Article 8
The price of CZC and the sharing of congestion income

1. The price of CZC for the exchange of balancing capacity and the sharing of congestion income associated with the use of CZC for the exchange of balancing capacity is entailed within the pricing and TSO-TSO settlement arrangements described in Articles 9 and 13 of the TSO's 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 EB Regulation.

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2. The implication of these arrangements is that the price of CZC for the exchange of balancing capacity is based on the nature of the exchange of balancing capacity enabled by the reservation of this CZC. Where the reservation of CZC enables the exchange of balancing capacity between bidding zones, the price of this CZC is equal to the difference in the balancing capacity market clearing price between the connected bidding zones for the balancing capacity product exchanged.

3. The pricing and TSO-TSO settlement arrangements described above also imply that the congestion income arising from the use of CZC for the exchange of balancing capacity is equal to the volume of CZC reserved for the exchange of balancing capacity multiplied by the difference in the balancing capacity market clearing price in the connected bidding zones. These arrangements also imply that the relevant congestion income is shared equally among the TSOs on the relevant zone border.

Article 9
Publication of information

1. The TSOs applying a market-based allocation process in the CCR Nordic shall publish information on offered volumes as well as the offered prices of procured balancing capacity, anonymised where necessary, no later than one hour after the results of the procurement have been notified to the bidders, pursuant to Article 12(3)(e) of the EB Regulation.

2.1. The TSOs applying a market-based allocation process in the CCR Nordic shall publish the following information on the allocation of CZC for the exchange of balancing capacity pursuant to Article 38 of the EB Regulation 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, pursuant to Article 12(3)(h) of the EB Regulation:

a)(a) date and time when the decision on allocation was made;

b)(b) period of the allocation;

c)(c) volumes allocated; including the actual percentage limit applied in accordance with Article 5 paragraph 1(a) to (c); and

d)(d) the market values used as a basis for the allocation process in accordance with Article 39 of the EB Regulation.

3.2. The TSOs applying athis market-based allocation process in the CCR Nordic shall publish the following information on the use of allocated CZC cross-zonal capacity for the exchange of balancing capacity pursuant to Article 38 of the EB Regulation at the latest one week after the use of allocated CZCcross-zonal capacity, pursuant to Article 12(3)(i) of the EB Regulation:

a)(a) volume of allocated and used CZCcross-zonal capacity per MTU,day-ahead market time unit and bidding zone border;

(b) volume of released CZC for subsequent timeframes per MTU;

(c) estimated realised costs and benefits of the allocation process.

(b) estimated realised costs and benefits of the allocation process. The TSOs will, based on the bid data for the respective standard balancing capacity product, estimate the reduction in procurement costs and estimated welfare gains compared to fulfilling the TSO demand without allocating cross-zonal capacity for exchange of the respective standard balancing capacity product. These estimated costs and benefits will be published as values for each bidding zone, day ahead market

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Nordic Market-based cross-zonal allocation methodology

time unit and each standard balancing capacity product for the balancing capacity market where this methodology is applied.

4.3. The TSOs applying athis market-based allocation process in the CCR Nordic shall publish the approved methodologiesdescription of the requirements of any algorithm developed and amendments to it referred to in Article 58 of the EB Regulation at least one month before their application pursuant to Article 12(3)(jk) of the EB Regulation. The document shall be publicly available on the TSOs webpage.

4. Subject to approvalThe TSOs applying this market-based allocation process shall publish an overview of the applicable default limits for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity pursuant to Article 18 of the EB Regulation, a TSO may withhold the publication of information on offered prices and volumes of balancing capacity or balancing energy bids if both justified for reasons of market abuse concerns and not detrimental to the effective functioning of the electricity markets. A TSO shall report such withholdings 5(1)(a) and (c).

5. The TSOs shall monitor the efficiency of the forecasting methodology and shall, by three months after the go-live of the market-based allocation process and subsequently at least once a year-, submit a report to the relevant regulatory authorityauthorities. This report shall include at least:

(a) a comparison of the forecasted and actual market values of cross-zonal capacity for the exchange of energy;

(b) assessment of occurred increases of the limits for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity in accordance with Article 59 of Directive (EU) 2019/944 and 5(1)(b), including statistics on the amount of incidents, increased volumes and percentages, reasons for the incidents and an analysis of the economic surplus effects on the SDAC;

(c) assessment of impacts on the economic surplus of the SDAC and economic surplus from the exchange of balancing capacity from the application of the market-based allocation process and the specific impact following an increase of a default limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity pursuant to the process described in Article 5(1)(c); and

5.(d) where necessary, proposals to improve the accuracy of the forecasted market values, including a different limit for the maximum volume of cross zonal capacity pursuant to Article 12(4) of the EB Regulation. 5(1) or different mark-up values per bidding zone border pursuant to Article 6(2).

TITLE 3
Final provisions

Article 1013
Publication and implementation of the Proposalmethodology for market-based capacity allocation

1. The TSOs shall publish the Proposalmethodology for market-based capacity allocation without undue delay after all the regulatory authorities of the CCR Nordic have approved the Proposal or a decision has been takenmade 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 6(2) of the EB Regulation.

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2. The TSOs shall implement this methodology no later than 12 months after a decision has been made by the European Union Agency for the Cooperation of Energy Regulators in accordance with Article 6(2) of the EB Regulation or as soon as the ~~Proposal at~~ cross zonal capacity on all bidding zone borders of the ~~same time as~~ Nordic CCR is calculated in accordance with the ~~common and harmonised rules and~~ capacity calculation methodologies developed pursuant to the CACM Regulation. The application of this methodology in the processes for the exchange ~~and procurement~~ of balancing capacity ~~in accordance with Article 33(1) and~~shall be subject to the methodology for the application of a ~~market based~~capacity allocation process in accordance with Article 38(1) of the EB Regulation.

Article ~~11~~14
Language

The reference language for ~~the Proposal~~this methodology for market-based capacity allocation shall be English. For the avoidance of doubt, where TSOs need to translate ~~the Proposal~~this methodology for market-based capacity allocation 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.~~

methodology for market-based capacity allocation.

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