
Energinet and Svenska kraftnät proposal for common and harmonised rules and processes for the exchange and procurement of FCR balancing capacity in accordance with Article 33(1) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

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Energinet and Svenska kraftnät, taking into account the following,

Whereas

- (1) This document provides a methodology for the establishment of common and harmonised rules and processes for the exchange and procurement of FCR balancing capacity in accordance with Article 33(1) of Commission Regulation (EU) 2017/2195 of 23 November establishing a guideline on electricity balancing (hereafter referred to as the “EB Regulation”) for the geographic area covering bidding zone Denmark 2 (DK2) and Sweden (hereafter referred to as the “the common FCR Capacity Market”). This methodology is hereinafter referred to as the “common FCR Capacity Market Rules”.
- (2) The Transmission System Operators Energinet and Svenska kraftnät (hereafter referred to as the “TSOs”) are considered the TSOs exchanging or mutually willing to exchange balancing capacity pursuant to Article 33(1) of the EB Regulation.
- (3) These common FCR Capacity Market Rules take into account the general principles and goals set out in the EB Regulation, in Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the “SO Regulation”), in 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 in 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 Regulation”).
- (4) The exchange of FCR balancing capacity is based on a TSO-TSO model and the FCR dimensioning rules in accordance with Article 153 of the SO Regulation.
- (5) The common Capacity Market Rules define the capacity procurement process where FCR balancing capacity bids will be submitted to the connecting TSO. Consistent with Article 58(3) of the EB Regulation and the EB Regulation's aims, as stated in its Article 3, the common procurement minimises the overall procurement costs for the balancing market of all jointly procured balancing capacity and enhances the security of supply. The procurement of upward and downward FCR-D balancing capacity is carried out separately while upward and downward FCR-N balancing capacity will be procured jointly. The transmission reliability margin calculated pursuant to Article 22 of the CACM Regulation shall be used for the exchange of FCR balancing capacity.
- (6) The TSOs have held a public consultation between the 19th of April and 18th of May, 2021 on the subject covered by this proposal pursuant to Article 10 in the EB Regulation.
- (7) These common FCR Capacity Market rules contribute to the achievement of the objectives of Article 3 of the EB Regulation. In particular, the common FCR Capacity Market Rules serve the following objectives:
 - a) These common FCR Capacity Market Rules foster effective competition, non-discrimination and transparency in balancing markets (Article 3(1)(a) of the EB

Regulation) by creating a regional market with common rules and processes for the procurement and exchange of FCR balancing capacity. These common FCR Capacity Market Rules, create a common FCR Capacity Market for the procurement and exchange of FCR balancing capacity. The market is based on common, transparent and non-discriminatory rules for submitting bids and selecting bids to cover FCR balancing capacity demand in each control area efficiently. The FCR balancing capacity is procured on a merit-order basis on all relevant auctions, and thus incentives balancing service providers (hereafter referred to as “BSPs”) to price bids competitively in order to get awarded.

- b) These common FCR Capacity Market Rules enhance the efficiency of balancing as well as the efficiency of European and national balancing markets (Article 3(1)(b) of the EB Regulation) and contribute 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 common FCR Capacity Market is based on a clearing process that seeks to cover the demand obligation for each day-ahead market time unit and product in the common FCR market for FCR balancing capacity by minimising total procurement costs in accordance with Article 58(3)(a) of the EB Regulation. This contributes to efficient balancing by making possible an efficient utilisation of FCR resources across control areas in order to secure the volume of balancing capacity needed to maintain operational security. TSO-TSO settlement is designed with the purpose to reflect conditions for exchange of FCR balancing capacity. Thus, the TSO-TSO settlement does not discriminate any party and contribute to promotion of possibilities for exchange of balancing services.
- c) These common FCR Capacity Market Rules contribute 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 common FCR Capacity Market. The common FCR Capacity Market fosters competition that reflect the scarcity of FCR balancing capacity in different control areas and contributing to efficient market entry of new reserve providing units or groups which can provide FCR balancing capacity.
- d) These common FCR Capacity Market Rules ensure fair, objective and transparent rules for a market-based procurement of balancing capacity. Therefore, the common FCR Capacity Market rules follow the objective of Article 3(1)(e) of the EB Regulation. The process for capacity procurement strives to keep the expected marginal bid unit cost as similar as possible for the two auctions for each product and day-ahead market time frame, while awarding bids according to merit-order. The motivation for this is to minimise the cost of provision, and ensure competition between both auctions. The process respects the constraints of block bids and indivisibility. The motivation for having two complementary auctions is to ensure sufficient supply liquidity as some providers prefer offering FCR balancing capacity before the final day-ahead market coupling takes place, whereas others prefer to offer FCR balancing capacity once the relevant day-ahead market coupling is finalised. The two stage auction procedure having a positive impact on overall FCR balancing capacity bid volume was supported by several responses in the public consultation.

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- e) These common FCR Capacity Market Rules facilitate 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 Regulation) by establishing a common FCR balancing capacity Market in which the requirements for FCR balancing capacity products are designed such that they can also be fulfilled by demand response, aggregation facilities and energy storage.
 - f) These common FCR Capacity Market Rules facilitate and do not hamper the participation of renewable energy sources in the common FCR Capacity Market and thus support the achievement of the European Union target for the penetration of renewable generation (Article 3(1)(g) of the EB Regulation).
- (8) Marginal pricing or pay-as-clear shall be the main pricing principle for the methodology, while pay-as-bid may solely be applied as the pricing principle for the methodology for a transitional period, until and including 31 January 2024 at the latest.
- (9) The TSOs are developing decision support tool for volume determination in the capacity procurement process, with the aim to further meet the principles in paragraph (7)(d). The process for volume determination along with historically procured volumes for each FCR balancing capacity product and auction will be published in order to ensure transparency and market function. The TSOs will continuously monitor and review the performance of the volume determination process.

SUBMIT THE FOLLOWING PROPOSAL TO RELEVANT REGULATORY AUTHORITIES WITHIN DENMARK AND SWEDEN:

TITLE 1

General provisions

Article 1

Subject matter and scope

1. This document establishes the common and harmonised rules and processes for the exchange and procurement of FCR balancing capacity in accordance with Article 33(1) of the EB Regulation while respecting the requirements of Article 32 of the EB Regulation.
2. These common FCR Capacity Market Rules apply to Energinet and Svenska kraftnät which are the TSOs exchanging balancing capacity pursuant to Article 33(1) of the EB Regulation.
3. The common FCR Capacity Market Rules cover bidding zone Denmark 2 (DK2) and Sweden.
4. These common FCR Capacity Market Rules apply to
 - FCR for normal operation for upward and downward regulation (FCR-N),
 - FCR for disturbance situations for upward regulation (upward FCR-D),
 - FCR for disturbance situations for downward regulation (downward FCR-D)

When referring only to FCR balancing capacity, it includes FCR-N, upward FCR-D and downward FCR-D.

5. The common FCR Capacity Market rules include principles for the FCR balancing capacity procurement process in accordance with Article 58(3) of the EB Regulation.

Article 2

Definitions and interpretation

1. For the purposes of the common FCR Capacity Market Rules, terms used in this document shall have the meaning of the definitions included in Article 2 of the EB Regulation, Article 3 of the SO Regulation, Article 2 of the CACM Regulation, the Electricity 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 the "Transparency Regulation") and Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (hereafter referred to as the "Electricity Directive").
2. The following definitions shall also apply:
 - a) 'pay-as-bid' means that every selected bid receives its demanded price;

- b) ‘TSO demand obligation’ means a balancing capacity volume to be procured determined per control area in accordance with Article 32(1) of the EB Regulation;
 - c) ‘symmetric product’ means that upward and downward balancing capacity are procured together.
3. In the common FCR Capacity Market Rules, unless the context requires otherwise:
- a) the singular indicates the plural and vice versa;
 - b) the headings are inserted for convenience only and do not affect the interpretation of this methodology;
 - c) any reference to legislation, regulations, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force; and
 - d) any reference to an Article without an indication of the document shall mean a reference to this methodology.

TITLE 2

Common FCR Capacity Market

Article 3

High-level design of the FCR Capacity Market

1. The volume of FCR balancing capacity procured by TSOs consists of volumes for
 - a) upward and downward FCR-N capacity,
 - b) upward FCR-D capacity, and
 - c) downward FCR-D capacity.
2. The procurement of FCR balancing capacity shall be performed daily the day before delivery (D-1) at two complementary auctions. Each auction covers every day-ahead market time unit of the trading day.
3. The validity period of bids from FCR balancing capacity products shall be equal to the day-ahead market time unit or be a multiple of the day-ahead market time units.
4. The common FCR Capacity Market is organised based on a TSO-TSO model with one balancing capacity gate closure time for each auction.
5. Gate opening time for BSPs to submit FCR balancing capacity bids is set at 00:00 CET seven days prior to delivery day (D-7) for both auctions.
6. Gate closure time for BSPs to submit FCR balancing capacity bids to the first auction shall be at 00:30 CET D-1. Auction results will be notified to BSPs at latest at 06:30 CET D-1.
7. Gate closure time for BSPs to submit FCR balancing capacity bids to the second auction shall be at 18:00 CET D-1. Auction results will be notified to BSPs at latest at 19:00 CET D-1.
8. BSPs are allowed to transfer its obligations to provide balancing capacity and/or repurchase its obligation to provide balancing capacity from the first auction in the second auction pursuant to Article 9 (3).
9. FCR balancing capacity bids are selected taking into account the constraints and objectives pursuant to Article 10.
10. Auction results will be published no later than 60 minutes after the notification to BSPs.

11. Accepted FCR balancing capacity bids shall be fully available for FCR energy activation during the delivery period.

Article 4

Prequalification for the provision of FCR balancing capacity

1. Each connecting TSO is responsible for the prequalification for the provision of FCR - providing units and/or FCR providing groups in its bidding zones in accordance with Article 155(1) of the SO Regulation.
2. Each BSP intending to provide FCR balancing capacity shall have passed successfully the qualification process defined by the connecting TSO pursuant to Article 16 of the EB Regulation and Article 155 of the SO Regulation.

Article 5

Characteristics of FCR products

1. The TSOs shall use FCR balancing capacity products that fulfill the following characteristics:
 - a) FCR-N is a symmetric product, thus the capacity should include both positive and negative direction.
 - b) Upward FCR-D: the direction of the capacity product shall be positive.
 - c) Downward FCR-D: the direction of the capacity product shall be negative.
2. Activation shall be proportional (pro-rata) to the procured FCR balancing capacity bid volumes per BSP pursuant to Article 154(2) in the SO Regulation.
3. The validity period of a FCR balancing capacity volume is at least one day-ahead market time frame, and in multiples of the day-ahead market time frame.

Article 6

Characteristics of FCR bids

1. Each FCR balancing capacity bid submitted by each BSP shall fulfil the following characteristics:
 - a) the FCR balancing capacity bid price shall be submitted in EUR/MW or SEK/MW;
 - b) the minimum bid quantity and granularity shall be 0.1 MW;
 - c) FCR balancing capacity bids are indivisible.
2. Each FCR balancing capacity bid submitted by each BSP shall contain:
 - a) type of FCR balancing capacity product;
 - b) validity period of FCR balancing capacity bid;
 - c) the volume of the bid in MW;
 - d) the unit price of the bid in [SEK/EUR]/MW and day-ahead market time unit.
3. Each FCR balancing capacity bid submitted by each BSP shall include the day-ahead market time unit(s) for which the bid is valid. For block bids, the bid's minimum acceptance duration in day-ahead market time unit(s) shall be specified. Block bids shall comply with the following requirements:

- a) The minimum acceptance duration for FCR balancing capacity bids submitted to the first auction shall not exceed six consecutive hours.
- b) The minimum acceptance duration for FCR balancing capacity bids submitted to the second auction shall not exceed three consecutive hours.
- c) The volume offered shall be the same for each consecutive market time unit.

Article 7

FCR balancing capacity bid submission

1. BSPs shall submit their FCR balancing capacity bids to the connecting TSO by the gate closure time as defined in Article 3.
2. The bid format and communication protocol for submission of the FCR balancing capacity bids shall be made available on the TSOs' websites.

Article 8

Procured volume of FCR balancing capacity

1. Each TSO is responsible for procuring the TSO demand for FCR balancing capacity for its control area necessary to fulfil the requirements set in the Nordic System Operation Agreement including the synchronous area operational agreement in accordance with Article 118 of the SO Regulation and the LFC block operational agreement in accordance with Article 119 of the SO Regulation.
2. The TSOs shall publish the expected demand obligation for each FCR product per day-ahead market time unit of the trading day. The TSOs revises the expected demand obligation for each FCR product on a daily basis starting seven days prior to the trading day.
3. The repurchased FCR balancing capacity volume(s) on the second auction is procured using bids from the FCR balancing capacity bids in the second auction.

Article 9

Transfer and repurchase of FCR balancing capacity

1. Each BSP is allowed to transfer its obligations to provide balancing capacity pursuant to Article 34 in the EB Regulation. When transferring their obligation to provide FCR balancing capacity, a BSP also transfer their obligation to be fully available for FCR energy activation during the delivery period.
2. Each BSP is allowed to repurchase its obligations to provide balancing capacity from the first auction in the second auction. A BSP shall inform its connecting TSO promptly of a repurchase.
3. The cost of a repurchase during the second auction is equal to the highest accepted capacity bid price for the relevant day-ahead market time unit(s) in the first and second auction multiplied with the volume of repurchase.
4. For each BSP the connecting TSO is allowed to repurchase the BSPs obligations for balancing capacity during the day of delivery (after the second auction has been finalised) using direct purchase if needed. A BSP shall inform its connecting TSO promptly of a repurchase during the trading day.
5. The cost of a repurchase during the trading day is equal to the highest accepted capacity bid price for the relevant day-ahead market time unit(s) in the first and second auction or during a direct repurchase multiplied with the volume of repurchase. A direct repurchase is a bilateral trade between the connecting TSO and a BSP. The connecting TSO contacts all FCR providing BSPs to get additional

offers on FCR balancing capacity, and then selects the bid(s) according to merit-order. In the case there is no FCR balancing capacity available for a direct trade, the cost of a repurchase during the trading day is set to the highest accepted capacity bid price for the relevant day-ahead market time unit(s) in the first and second auction.

Article 10

Principles for the capacity procurement process

1. Bids are accepted according to merit-order, and the overall goal is to minimise the overall cost of provision for the trading day for the common FCR Capacity Market for all FCR products separately.
2. The accepted bids in the first auction are selected based on the expected cost of provision per day-ahead market time unit in the second auction for each FCR balancing capacity product.
3. The accepted bids in the second auction are selected based on merit-order and minimises the overall cost of provision for the trading day per FCR product, while meeting the total demand obligation and potential FCR repurchase volumes for the common FCR market.
4. The objective of the bid selection process is to minimise the overall cost of provision given the constraint defined in paragraph 2 and defined as follows, summing across day-ahead market time units of the trading day t and FCR balancing capacity bids i ,

$$\sum_t \sum_i (\text{bidcost}_i \times \text{bidvolume}_i \times \text{selected}_i)_t$$

Where:

bidcost_i is the FCR balancing capacity bid cost of FCR balancing capacity bid i ;

bidvolume_i is a valid increment of FCR balancing capacity bid i ;

selected_i is a boolean denoting whether or not the FCR balancing capacity bid increment is accepted.

5. The acceptance of bid offers is subject to the operational constraints pursuant to Article 118(1) and 163(2) of the SO Regulation.

Article 11

TSO-TSO Settlement of procured FCR balancing capacity

1. The TSO-TSO settlement will change when the introduction of pay-as-cleared remuneration is introduced, thus two separate TSO-TSO settlements are described and proposed. The first section (section a) describes the current TSO-TSO settlement until the introduction of pay-as-cleared remuneration, and the second section (section b) describes the TSO-TSO settlement after the introduction of pay-as-cleared remuneration.

Section a: TSO-TSO settlement until the introduction of pay-as-cleared

1. The TSO-TSO settlement described in Section a is valid until and including 31 January 2024 at the latest.
2. The TSO-TSO settlement between Energinet and Svenska kraftnät in the common FCR capacity market occurs on a monthly basis.
3. The settlement is calculated for each day-ahead market time frame and per FCR balancing capacity product. The settlement is divided into three consecutive calculation (a-c) steps according to:

- a. Svenska kraftnät invoices Energinet according to the FCR balancing capacity demand obligation (MW) for bidding zone DK2 multiplied with the highest accepted capacity bid price for the relevant day-ahead market time unit in the first and second auction and intraday bilateral procurement (D-0).

$$SUM A_1 = MP_{1, \# \$, \# \%, \# \&} \times DK2 \text{ demand obligation } MW_1$$

- b. Energinet invoices Svenska kraftnät according to the difference between volume weighted average unit price for danish awarded BSPs and the highest accepted capacity bid price for the relevant day-ahead market time unit in the first and second auction and intraday bilateral procurement multiplied with the smallest of the FCR balancing capacity demand obligation for bidding zone DK2 and the accepted FCR balancing capacity volume from danish providers in the first and second auction and intraday bilateral trade (D-0).

$$SUM B_1 = (MP_{1, \# \$, \# \%, \# \&} - VWAP_{1, \# \$}) \times \min(DK2 \text{ demand obligation } MW_1, \text{ Accepted capacity volume } DK2_1)$$

- c. Energinet invoices Svenska kraftnät according to the total accepted FCR balancing capacity volume from danish BSPs multiplied with the corresponding bid unit cost for the accepted bids from danish BSPs from the first and second auction and the intraday bilateral procurement.

$$SUM C_1 = \sum_{i \in \text{danish accepted BSP bids}} (bid\ cost_i \times bid\ volume_i \times selected_i)$$

The net sum of step a-c is settled between the TSOs.

Section b: TSO-TSO settlement after the introduction of pay-as-cleared

1. The TSO-TSO settlement described in Section b will be applied from 1 February 2024 at the latest.
2. The TSO-TSO settlement between Energinet and Svenska kraftnät in the common FCR capacity market occurs on a monthly basis.
3. The TSO-TSO settlement is calculated for each day-ahead market time frame and per FCR balancing capacity product. The TSO-TSO settlement is completed in a single step according to step a below.
 - a. The exporting TSO invoices the importing TSO according to exported capacity (MW) multiplied with the prevailing marginal price (EUR/MW) for each balancing product separately, for each market time unit.

The exported capacity is defined as the difference between the demand for balancing capacity and accepted balancing capacity volume from connecting providers for the specific balancing capacity product.

The prevailing marginal price is defined as the highest unit bid cost of the accepted bids for each balancing capacity product respectively for each market time unit.

Article 12

TSO-BSP Settlement of procured FCR balancing capacity

1. Each TSO shall settle with each BSP each accepted FCR balancing capacity bid volume for each day-ahead market time unit and for each product.
2. Until and including 31 January 2024 at the latest, the settlement shall be equal to the accepted balancing capacity bid volume multiplied with the respective balancing capacity unit price(s) as defined in Article 6.

3. As of 1 February 2024 at the latest the settlement shall be equal to the accepted balancing capacity bid volume multiplied with the respective balancing capacity marginal price.

Article 13 **Publication of information**

1. The TSOs shall publish the accepted FCR balancing capacity volume for each product and for each auction per day-ahead market time unit no later than 60 minutes after the BSPs have been notified of the market results.
2. The TSOs shall publish the volume weighted average FCR balancing capacity unit price for the awarded bids for each product and for each auction per day-ahead market time frame no later than 60 minutes after the BSPs have been notified of the market results.
3. The TSOs shall publish the following information for FCR balancing capacity in accordance with Article 12(3) of the EB Regulation, and in accordance with the applicable decisions of the relevant national regulatory authorities on derogations pursuant to Article 18(7)(e), ref. to Article 12(4), of the EB Regulation:

offered volumes as well as 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 BSPs. This information shall be published on a publicly accessible website once the outputs of the capacity procurement optimisation function are available and no later than one hour after the accepted FCR balancing capacity bids have been notified to the relevant BSPs;

TITLE 4 **Final provisions**

Article 14 **Publication and implementation of the Proposal**

1. The TSOs shall publish the common FCR Capacity Market Rules without undue delay after relevant regulatory authorities approved the Proposal or a decision has been taken by the Agency for the Cooperation of Energy Regulators in accordance with Article 5(6) and Article 5(7), of the EB Regulation.
2. The TSOs shall implement the common FCR Capacity Market Rules no later than 12 months after a decision has been made by the relevant regulatory authorities or by the Agency for the Cooperation of Energy Regulators.

Article 15 **Language**

The reference language for the Proposal shall be English. For the avoidance of doubt, where TSOs need to translate the Proposal 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.