
Explanatory document to all TSOs' proposal on a list of standard products for balancing capacity for frequency restoration reserves and replacement reserves in accordance with Article 25(2) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

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DISCLAIMER

This document is submitted by all transmission system operators (TSOs) to ACER for informative purposes only, accompanying the all TSOs' proposal on a list of standard products for balancing capacity for frequency restoration reserves and replacement reserves pursuant to Article 25(2) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing.

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Definitions and Abbreviations

Definitions

- ‘Balancing capacity contracting period’** means the period for which a BSP can submit one or more standard product for balancing capacity bid. A balancing capacity contracting period can include one or more balancing capacity validity periods.
- ‘Balancing capacity validity period’** means the period for which the single standard product for balancing capacity bid (i.e. each submitted capacity volume has one single bid price) is offered and for which the accepted standard product for balancing capacity bid could be activated as standard product for balancing energy bid where all the characteristics of the standard product for balancing energy are respected. The balancing capacity validity period is defined by a start time and an end time.
- ‘Cross zonal capacity’** means the capability of the interconnected system to accommodate energy transfer between bidding zones. This cross zonal capacity can be used by market participants in the energy market or by TSOs for the exchange of balancing capacity or sharing of reserves
- ‘Exchange of balancing capacity’** means the provision of balancing capacity to a TSO in a different scheduling area than the one in which the procured balancing service provider is connected.
- ‘Sharing of reserves’** means a mechanism in which more than one TSO takes the same balancing capacity, being FCR, FRR or RR, into account to fulfil their respective reserve requirements resulting from their reserve dimensioning processes.

1 Introduction

The Commission Regulation (EU) 2017/2015 establishing a guideline on electricity balancing (hereafter referred to as the “EB Regulation”) established an EU-wide set of technical, operational and market rules to govern the functioning of electricity balancing markets.

The main purpose is the integration of balancing markets to enhance the efficiency of the European balancing processes. The integration should be done in a way that avoids undue market distortion. In other words, it is important to focus on establishing a level playing field. This requires a certain level of harmonisation in both technical requirements and market rules. To provide this level of harmonisation, the EB Regulation sets out certain requirements for the developments of harmonised standard products for balancing capacity.

This document gives background information and rationale for the all TSOs' proposal regarding the development of a list of standard products for balancing capacity for frequency restoration reserves and replacement reserves, (hereafter referred to as “SPBC proposal”), being developed in accordance with Article 25(2) of the EB Regulation.

This explanatory document has been prepared in support of the SPBC proposal.

The aim of this explanatory document is to provide additional information with regard to the standard products for balancing capacity.

For higher legibility the document is structured as follows:

Chapter 1 provides an introduction and background of SPBC proposal and chapter 2 gives a general presentation of the EB Regulation for the requirements of a list of standard products for balancing capacity from frequency restoration reserves and replacement reserves.

Chapter 3 provides background information regarding procurement of balancing capacity, balancing energy and the prequalification process. Furthermore, a description of balancing capacity cooperation is included. Chapter 4 describes characteristics of standard product for balancing capacity, whereas chapter 5 gives an overview of SPBC bid characteristics.

Chapter 6 is dedicated to the implementation timeline and chapter 7 describes the process of public consultation.

2 EB Regulation Requirements for list of standard products for balancing capacity

Article 25(2) of the EB Regulation requires the TSOs to develop a list of standard products for balancing capacity. This section provides a summary of the core EB Regulation requirements for the SPBC Proposal.

2.1. List of standard products for balancing capacity (Article 25(2) of the EB Regulation)

Article 25(2) of the EB Regulation states the requirement to develop “*a list of standard products for balancing capacity for frequency restoration reserves and replacement reserves.*”

Besides the obligation to develop a proposal, Article 25(5) of the EB Regulation defines boundary conditions for this methodology.

“*Such standard product shall set out at least the following variable characteristics of a standard product to be determined by the balancing service providers during the prequalification or when submitting the standard product bid:*

- (a) price of the bid;*
- (b) divisibility;*
- (c) location;*
- (d) minimum duration between the end of deactivation period and the following activation.*

3 Background information on balancing capacity and energy

Two or more TSOs exchanging or mutually willing to exchange balancing capacity may form a cooperation, hereafter referred as “balancing capacity cooperation”.

The article 25(2) of the EB Regulation requires the TSOs to only develop a list of standard products for balancing capacity however, it does not set any requirement on the harmonization. The following paragraph aims to clarify the different aspects that the TSOs will strive to harmonize in order to provide a level-playing field for all BSPs of the same balancing capacity cooperation.

3.1 Balancing Capacity Procurement

To respect system security on a synchronous area level, TSOs may procure balancing capacity from balancing service providers (BSPs). Amount of procured balancing capacity represents BSP obligation to bid the same amount of balancing energy bids or integrated scheduling process bids to the respective TSO and deliver energy in real-time operation according to TSO needs. That is why procurement of balancing capacity market takes place before balancing energy market.

The volumes of balancing capacity which each TSO procures in order to ensure sufficient reserves to cope with imbalances in real time are dependent on the TSO's dimensioning. TSOs must ensure that these reserves are available for activation, taking into account internal congestion or operational security constraints within the connecting TSO scheduling area. In some cases, the location of the balancing capacity bid is needed to mitigate for severe risk of insufficient reserve capacity ensure that TSOs have fulfilled their dimensioning requirements for operational security. Therefore, according to article 159(7) of SOGL, this option should be available to the TSOs, where justified by the severe risk of insufficient reserve capacity.

Two or more TSOs exchanging or mutually willing to exchange balancing capacity shall develop a proposal for the establishment of common and harmonised rules and processes for the exchange and procurement of balancing capacity pursuant to Article 33 of the EB Regulation. Moreover, procurement rules will be reflected in terms and conditions related to balancing on a national level according to Article 18 of the EB Regulation.

When several TSOs are willing to exchange balancing capacity or share reserves, they may develop a cooperation defined by Article 38 of the EB Regulation and jointly procure balancing capacity not only in their respective area but in the broader region. For this purpose, the EB Regulation foresees setting of standard products for balancing capacity that all TSOs in respective cooperation shall submit to its common capacity procurement optimization function. For this purpose, consideration of cross-zonal capacity is defined in methodologies in accordance with Articles 40 - 42 of the EB Regulation.

3.2 Pre-qualification process

Article 18 in the EB Regulation states that each TSO of a member state shall develop a proposal for the terms and conditions for balancing service providers and balance responsible parties. The terms and conditions for balancing service providers shall contain the rules for the qualification process to become a balancing service provider pursuant to Article 16 of the EB Regulation.

Article 16 (1) of the EB Regulation states that a balancing service provider shall qualify for providing bids for balancing energy or balancing capacity which are activated or procured by the connecting TSO or, in a TSO-BSP model, by the contracting TSO.

Successful completion of the pre-qualification ensured by the connecting TSO and processed pursuant to Article 159 and Article 162 of the SO Regulation shall be considered as a prerequisite for the successful completion of the qualification process to become a balancing service provider.

Furthermore, Article 159 (1) of the SO Regulation states that each TSO shall develop a FRR prequalification process and shall clarify and make publicly available its details. Thus, each TSO will

develop a prequalification process for the provision of standard product for balancing capacity of the providing units and/or providing group in the LFC area under its responsibility including LFC areas consisting of more than one TSO or, in specific cases, with a designated TSO according to article 159(5) of SO Regulation that will be part of the terms and conditions.

3.3 Exchange of balancing capacity or sharing of reserves

3.3.1 EB Regulation Articles on exchange of balancing capacity or sharing of reserves

In contrast to the mandatory requirement to build one single market for each balancing energy product, the EB Regulation does not require to build one single cooperation for balancing capacity. Article 33 and 38 of the EB Regulation allows two or more TSOs, on a voluntary basis, to establish common rules and processes in order to exchange balancing capacity or share reserves. Therefore, the requirements for harmonisation of standard products for balancing capacity are less compared to the requirements for harmonisation of a standard product for balancing energy.

Secondly, the EB Regulation allows different methodologies on how TSOs can apply to the allocation process for cross zonal capacity. The timeframe of procurement of balancing capacity and the allocation of cross zonal capacity to exchange balancing capacity abroad per balancing capacity cooperation can vary from year ahead until a timeframe in between SDAC and SIDC.

The Articles 40, 41, and 42 of the EB Regulation provide the requirements and especially the different options TSOs exchanging balancing capacity or sharing of reserves have when applying the different methods for cross zonal capacity allocation.

3.3.2 Requirement for TSOs exchanging balancing capacity or sharing of reserves

Two or more TSOs exchanging balancing capacity are required, according to Article 33.3 of the EB Regulation, to use standard product for balancing capacity. Since each balancing capacity cooperation can apply its own common and harmonised rules and processes, according to Article 33.1 of the EB Regulation. The standard product to be used is at discretion of the balancing capacity cooperation.

This proposal proposes a list of standard products for balancing capacity for aFRR, mFRR and RR which shall be used by the TSOs exchanging the balancing capacity or sharing reserves. Secondly, if TSOs cannot rely on available CZC after intraday cross-zonal gate closure according to Article 33.4(a) of the EB Regulation, they must apply one of the three CZC allocation methodologies according to Article 33.4(b) of the EB Regulation. The three different methodologies are:

- Co-optimisation according to Article 40 of the EB Regulation,
- Market-based allocation according to Article 41 of the EB Regulation,
- Economic efficiency according to Article 42 of the EB Regulation.

Each balancing capacity cooperation may choose one of the three different CZC allocation methodologies that differ based on:

- using actual bids for both balancing capacity and trading bids (co-optimisation),
- using actual bids and forecasted bids (market-based) or,
- using only forecasted bids for both balancing capacity and trading bids (economic efficiency).

The three different CZC allocation methodologies each have their own balancing capacity product requirement, therefore, the list of standard products for balancing capacity includes different options in order to cover those requirements.

3.3.3 Contracting period and balancing capacity gate closure time

Application of CZC allocation based on economic efficiency according to Article 42(1) of the EB Regulation requires TSOs to procure balancing capacity bids more than one week in advance of the provision of the balancing capacity. Meanwhile, Article 41(1) of the EB Regulation, the market-based allocation, requires TSOs to procure balancing capacity bids not more than one week in advance of the provision of the balancing capacity. Article 40(1) of the EB Regulation, the co-optimisation allocation, requires TSOs to procure balancing capacity bids not more than one day in advance of the provision of the balancing capacity.

Consequently, there must be different contracting periods and consequently gate closure times possible for standard product for balancing capacity bids in order to not violate the CZC allocation methodologies of Article 40, Article 41, and Article 42 of the EB Regulation.

3.4 Standard product for balancing energy

As a principle, every standard balancing capacity product must be able to deliver standard balancing energy product.

RR standard product for balancing energy:

The product exchanged in RR-Platform is the standard product for balancing energy from RR. From a commercial point of view, the RR standard product is a scheduled block product that can be activated for a fixed quarter hour or a multiple of a fixed quarter hour respecting the minimum and maximum duration of the delivery period. The full activation time of the RR standard product is 30 minutes. The ramping period can be from 0 to 30 minutes.

mFRR standard product for balancing energy:

The product exchanged in mFRR-Platform is the standard product for balancing energy from mFRR. Currently, the TSOs foresee using a linear ramp of 10 minutes for the cross-border exchange. A 10-minute ramp equals the ramp which is already in use for scheduled programs of exchange across Continental Europe.

Bids have two activations types: 'Scheduled only' means bids which can only be activated at the point of scheduled activation; and 'Direct' means bids that can be activated at the point of scheduled activation and anytime during the 15 minutes after the point of scheduled activation. Full activation time is set at maximum 12.5 minutes.

For the specific case of mFRR which has two activation types, the procured standard product for balancing capacity must be able to deliver mFRR standard product for balancing energy with direct activation for the purpose of restoring frequency within the Time to Restore Frequency (TTRF).

aFRR standard product for balancing energy:

The product exchanged in aFRR-Platform is the standard product for balancing energy from aFRR.

Due to the heterogeneous generation structure within Europe and the resulting differences in the existing aFRR market, TSOs foresee a progressive harmonisation, with only the essential concepts being harmonised before the launch of the platform. It is deemed necessary to harmonise the minimum bid size, bid granularity and balancing capacity validity period from the start of the platform and set a fixed date for the harmonisation of the full activation time.

The full activation time can be divided into a preparation period (during which no energy is delivered) and a ramping period. The requirements for the preparation period vary across Europe as it depends on the mode of activation in use and the local generation structure. Nevertheless, for aFRR the preparation time

remains very short as aFRR delivery is an automatic process. TSOs consider that specifying a harmonised full activation time will provide enough quality guarantee of the aFRR product, while the detailed requirements for the preparation period can remain at the national level.

Regarding the deactivation period, TSOs consider that the duration of the full activation time is also relevant for deactivation.

4 Characteristics of standard product for balancing capacity

A characteristic of standard product for balancing capacity is a property of a product which makes it differentiable from one another in terms of “quality, value and/or type”.

The TSOs identified 3 characteristics:

- Balancing capacity validity period;
- Minimum duration between the end of deactivation period and the following activation (or “minimum duration” in short);
- Direction of the capacity: upward or downward.

Specific possible values of these characteristics are defined in Annex 1 of SPBC Proposal.

4.1 Balancing capacity validity period

The list of standard products for balancing capacity includes several options for the balancing capacity validity period.

Article 42(1) of the EB Regulation, the economic efficiency allocation, requires TSOs to procure balancing capacity with a contracting period of more than one day. A contracting period means the period for which a BSP can submit one or more balancing capacity bids. If the balancing capacity validity period is equal to the contracting period, it means that a BSP can only submit bids for the whole contracting period. If a contracting period consists of several validity periods, it means that a BSP can submit different volumes and different prices with different bids within one contracting period.

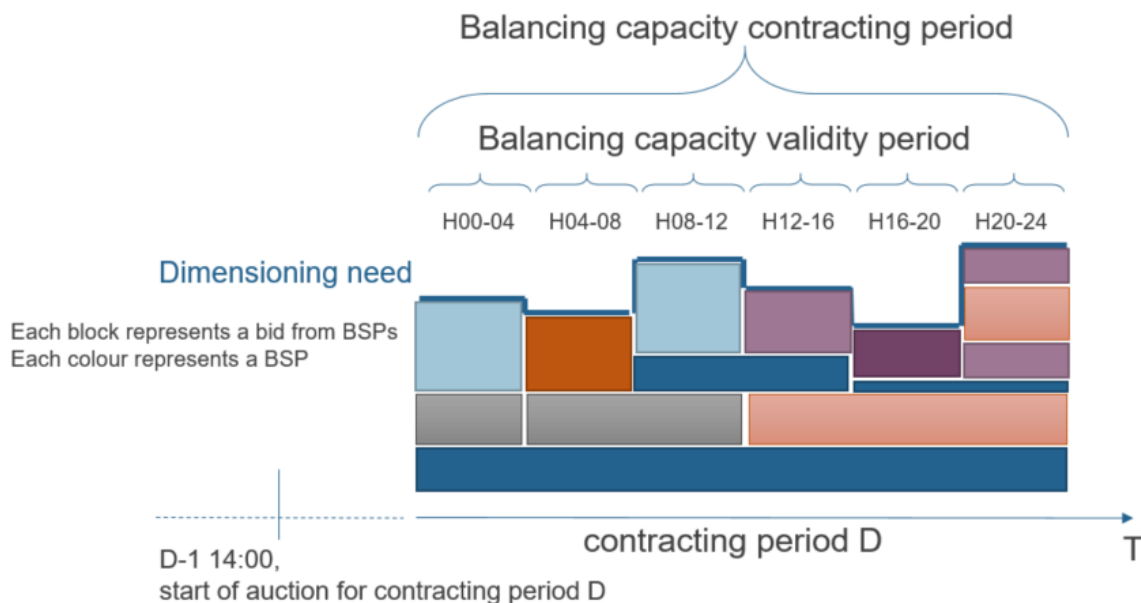


Figure 1: Example of clearing of a capacity auction with balancing validity period shorter than contracting period

In Article 41(1) and Article 40(1) of the EB Regulation, TSOs are required to procure balancing capacity with a contracting period of not more than one day, different from the requirement of Article 42(1) of the EB Regulation.

Consequently, possible balancing capacity validity periods require to have at least one balancing capacity validity period per product that does not exceed 24 hours. Therefore, the list of standard products for balancing capacity contains several options, covering a range of 15 minutes to 1 week.

The TSOs consider the duration for which the capacity is contracted (or “balancing capacity validity period”) as a characteristic of a balancing capacity product. Balancing capacity validity period should not be mistaken with the time of the auction (time when the contracting is done in advance of the provision of the balancing capacity) or the contracting period. For example: the balancing capacity validity period of a capacity product could be 4 hours. The contracting period can be 1 day = 24 hours meaning a BSP has to submit at least 6 bids of 4 hours. And the auction itself could take place week-ahead and means that the contracting is done 7 days in advance of the provision of the balancing capacity.

To make a parallel to an energy market, the same volume of energy has different value depending on the period of the day it is sold (during the same auction, say Day-Ahead). It may have a higher value during morning or evening peak compared to early morning or late night. Similarly, balancing capacity product may have different value throughout the time of the day or the time of the week (weekdays/ weekend).

4.2 Minimum duration between the end of deactivation period and the following activation

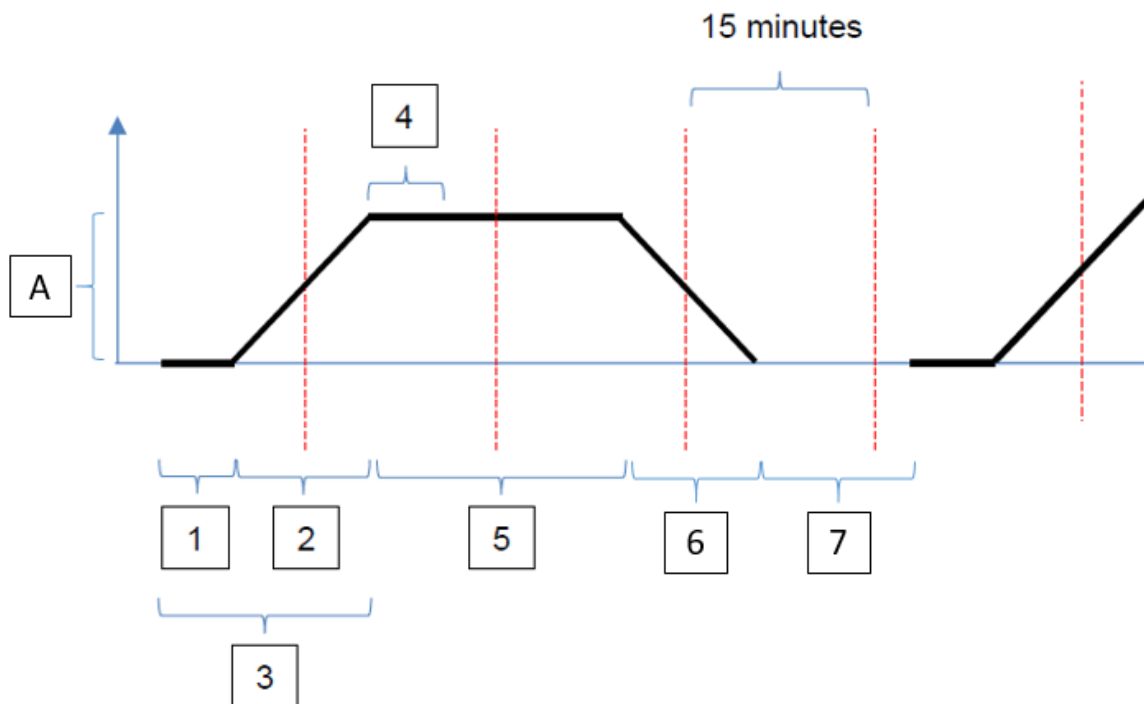


Figure 2: Standard product characteristics, where, A – requested power; 1 – preparation time; 2 – ramping (up) period; 3 – full activation time; 4- delivery period due to scheduled activation; 5 – delivery period; 6 – ramping (down) period; 7 - minimum duration between the end of deactivation period and the following activation.

The EB Regulation Article 25(5) foresees that BSPs shall submit a minimum duration between the end of deactivation period and the following activation. The TSOs consider the minimum duration as a characteristic of a capacity product. For example, a capacity which has a minimum duration is intuitively less valuable than a capacity without minimum duration. This is especially relevant for dimensioning and

procurement of reserves. Depending on the rules established by TSOs of balancing capacity cooperation, TSOs may decide to include a mix of capacity product with different minimum durations in order to optimize the procurement costs while still ensuring the dimensioning requirement.

The TSO understands its obligation to EB Regulation art 25.6 (b) (*“facilitate the participation of demand facility owners, third parties and owners of power generating facilities from renewable energy sources as well as owners of energy storage units as balancing service providers.”*) and therefore should give BSPs enough flexibility to represent their technical constraints, which may be represented by a minimum duration between the end of deactivation period and the following activation. By facilitating the participation of more BSPs in the balancing capacity market, the liquidity increases and the procurement costs is expected to be reduced.

Depending on the rules established by TSOs of balancing capacity cooperation and implemented in the respective terms and conditions (and approved by relevant NRA), TSOs may decide to differentiate the balancing capacity product for mFRR into two:

- a product for which this characteristic is not restrictive (i.e. the characteristic is set to “0”)
- a product for which this characteristic may be restrictive (i.e. the BSP may submit a restricting value within the defined range).

The first product aims to accommodate generation units which usually do not have a minimum duration between the end of an activation and the following activation.

The second product aims to foster the participation of other assets which may have restriction. The restriction, to be determined by the BSPs in the form of full hour, is formulated as a range instead of specific values to pool the liquidity from the BSPs and increase competition as well as reduce the complexity on the TSOs side by limiting the number of products to reasonable amount. TSOs may in the terms and conditions apply economic incentives to make the BSP reduce the restrictions of their bid.

The TSO must in the dimensioning of reserves evaluate the expected availability of balancing energy bids and consider whether the products with restrictions can be accepted. In case balancing capacity is procured to ensure available balancing energy bids for managing dimensioning incident, one may argue that these levels of balancing energy are only needed for the time to restore frequency, and the risk for unavailable bids in subsequent market time units may be acceptable.

4.3 Direction of balancing capacity: upward or downward

According to Article 32.3 of the EB Regulation, the procurement of upward and downward balancing capacity shall be carried out separately for at least frequency restoration reserves and replacement reserves. Therefore, an upward balancing capacity bid is a different product than a downward balancing capacity bid.

5 Characteristics of standard product for balancing capacity bid

5.1 Price characteristics

The TSOs propose that BSPs submit the balancing capacity bids with a bid price that shall be expressed in (EUR/MW)/h and have a resolution of 0.01 (EUR/MW)/h, which is in line with the standard products for balancing energy as well as the wider energy market.

The TSOs propose that the balancing capacity bid price may be positive or zero and that the payment shall be from the TSO to the BSPs only.

5.2 Volume characteristics

The TSOs propose a minimum bid quantity of 1 MW and a bid granularity of 1 MW steps, which is in line with the standard products for balancing energy as well as the wider energy market. However, the TSOs propose to let each TSO determine the maximum bid quantity according to the terms and conditions since it may reflect certain market structure or conditions. The maximum bid size may also be different for each reserve (aFRR, mFRR and RR). However, TSOs exchanging balancing capacity or sharing of reserves must harmonize such maximum bid quantity be amongst all the TSOs in the balancing capacity cooperation.

5.3 Bid divisibility

As required by the EB Regulation Article 25(5), BSPs may submit divisible bids as well as indivisible bids. The TSOs understand that this characteristic of the bid is valuable for the BSPs in order to potentially reflect their costs in a balancing capacity market and therefore do not consider further restrictions. Possibility to submit indivisible balancing capacity bids by BSPs is determined in the national terms and conditions.

The TSOs propose to not harmonize a maximum indivisible bids cap and leave such decision to the TSOs exchanging balancing capacity or sharing of reserves and as far as it is compliant with terms and conditions for BSPs. This is also in line with proposal for standard product for balancing energy.

However, it must be noted that indivisible bids will introduce complexity in the auction clearing algorithm, which may potentially lead to unwanted effects such as unforeseeably rejected bid (URB), unforeseeably accepted bid (UAB).

The TSOs propose to have a divisibility of bid of 1 MW to be in line with the different energy products.

5.4 Location

As required by Article 25(5) of the EB Regulation, BSPs have to submit locational information regarding their bids. Such information must at least be at a bidding zone or LFC area level, which is in line with the requirements for the balancing energy product. BSPs may also be required to provide additional locational information on the bids depending on the terms and conditions, according to EBGL article 18(5)(g). Such requirements shall take into account the rules and conditions for the aggregation of demand facilities, energy storage facilities and power generating facilities in a scheduling area to become a balancing service provider.

Each TSO must develop a proposal for terms and conditions for balancing service providers. The proposals for the terms and conditions is subject to approval by each regulatory authority of each concerned Member State on a case-by-case basis.

Indeed, some TSOs may require more accurate information on location for their internal process. TSOs acknowledge the need for a level-playing field between market participants, including demand-response aggregators and assets located at the distribution level. However, balancing capacity is procured by TSOs in order to ensure sufficient reserves to cope with imbalances in real time, according to dimensioning rules. TSOs must ensure that these reserves are available for activation, taking into account internal congestion or operational security constraints within the connecting TSO scheduling area. In some cases, the location of the balancing capacity bid is needed to mitigate for severe risk of insufficient reserve capacity ensure that TSOs have fulfilled their dimensioning requirements for operational security. The additional locational information will in such cases enable the connecting TSO to evaluate whether the balancing capacity bid can be marked as available for the balancing capacity procurement optimisation function.

TSOs will to the largest extent possible remove barriers for balancing service providers to participate in the balancing capacity market and enable an efficient market-based procurement of balancing capacity. Additional requirements of locational information should therefore be kept to a minimum and only when justified by the severe risk of insufficient reserve capacity. The TSOs within each balancing capacity cooperation should at least strive to harmonise requirements to additional characteristics, as explained in chapter 5.5.

5.5 Other bid characteristics

A TSO may define additional characteristics of standard products for balancing capacity bids. Two or more TSOs exchanging balancing capacity or sharing of reserves may also commonly apply additional characteristics for their balancing capacity bids to be defined in the proposal for the establishment of common and harmonised rules and processes for the exchange and procurement of balancing capacity (Article 33(1) of the EB Regulation), such as having the possibility to link bids or to submit mutually exclusive bids.

6 Implementation timeline

The SPBC Proposal is considered implemented when the Agency for the Cooperation of Energy Regulators has approved the proposal. However, the proposal is applicable only then the moment two or more TSOs exchange balancing capacity or sharing of reserves since a standard product for balancing capacity is required to be procured, according to Article 33.3 of the EB Regulation, by the TSOs exchanging the balancing capacity. This implicitly means the moment CZC is allocated for the exchange of balancing capacity or sharing of reserves by two or more TSOs, standard products for balancing capacity must be procured.

7 Public Consultation

To fulfil the EB Regulation requirements, this proposal is subject to consultation in accordance with Article 10(3) of the EB Regulation. The public consultation was held from 15 May until 31 July 2019. In addition, ENTSO-E held a Stakeholder Workshop on standard product for balancing capacity on 6th of June in which the content of this SPBC proposal was presented and explained. Stakeholders inputs were addressed and incorporated in SPBC Proposal and new version of SPBC proposal was drafted and submitted for approval to the Agency until December 18, 2019. The answers on the received feedback of stakeholders are available on ENTSO-E website.