
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 explanatory document is released on behalf of the all transmission system operators ("TSOs") only for the purposes of the public consultation on the All TSOs' proposal for a list of standard products for balancing capacity for frequency restoration reserves and replacement reserves. This version of the proposal does not in any case represent a firm, binding or definitive TSOs' position on the content.

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Definitions and Abbreviations

Definitions

- ‘Balancing capacity cooperation’** means two or more TSOs that apply the exchange of balancing capacity or sharing of reserves in a geographical area divided by two or more bidding zones.
- ‘Balancing capacity contracting period’** means the period for which a BSP can submit one or more balancing capacity and is also known as the auction period. A balancing contracting period can include one or more balancing capacity validity periods.
- ‘Balancing capacity validity period’** means the period for which the single standard balancing capacity bid (i.e. each submitted capacity volume has one single bid price) is offered and for which the accepted standard balancing capacity bid could be activated as standard balancing energy bid where all the characteristics of the standard balancing energy product 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 process of procuring balancing capacity by a TSO in a different responsibility area or scheduling area when appropriate than the one in which the procured balancing service provider is connected. The exchange of balancing capacity allows cost savings for the system.
- ‘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.

Abbreviations

The list of abbreviations used in this document:

aFRR	frequency restoration reserve with automatic activation
CZC	cross zonal capacity
EBGL	electricity balancing guide line
ENTSO-E	European Network of Transmission System Operators for Electricity
EU	European Union
FRR	frequency restoration reserve
mFRR	frequency restoration reserve with manual activation
MW	megawatt
NRA	national regulatory authority
RR	replacement reserve
SOGL	guideline on electricity transmission system operation
SPBC	standard product balancing capacity
TSO	transmission system operator

1 Introduction

The Commission Regulation (EU) 2017/2015 establishing a guideline on electricity balancing (hereafter referred to as the “EBGL”) 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 EBGL 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 EBGL.

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 of this proposal and chapter 2 gives a general presentation of the EBGL 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 prequalification, describes balancing capacity cooperation. Chapter 4 describes characteristics of standard balancing capacity product, whereas chapter 5 gives overview of SPBC bid characteristics.

Chapter 6 is dedicated to the implementation timeline and chapter 7 describes the process of public consultation, including intended stakeholder workshop about SPBC proposal.

2 EBGL Requirements for list of standard products for balancing capacity

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

2.1. List of standard products balancing capacity (Article 25(2) of the EBGL)

Article 25(2) of the EBGL 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 EBGL 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

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 to the respective TSO and deliver energy in real-time operation according 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 are dependent on the TSO's dimensioning. Dimensioning requirements for balancing processes are in detail described in SOGL. These requirements set minimum volumes of balancing capacity which each TSO has to procure for its operation.

Each TSO defines balancing capacity procurement rules in terms and conditions related to balancing on a national level according to Article 18 of the EBGL. When several TSOs are willing to, they may develop balancing capacity cooperation defined by Article 38 of the EBGL and procure balancing capacity not only in their respective area but in the broader region. For this purpose, the EBGL foresees setting of standard balancing capacity products 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 EBGL.

3.2 Standard product balancing energy

Article 25 of the EBGL states that standard products for balancing energy shall be developed as part of the proposals for the implementation frameworks for the European platforms pursuant to Articles 19, 20 and 21.

The EBGL sets up certain requirements for standard products in Article 25(4) and Article 25(5). Article 25(4) sets out the technical parameters.

The list of standard products for balancing energy and balancing capacity may set out at least the following characteristics of a standard product bid:

- (a) *preparation period;*
- (b) *ramping period;*
- (c) *full activation time;*
- (d) *minimum and maximum quantity;*
- (e) *deactivation period;*
- (f) *minimum and maximum duration of delivery period;*
- (g) *validity period;*
- (h) *mode of activation.*

RR standard product 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 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.

aFRR standard product 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.

3.3 Pre-qualification process

Article 18 in the EBGL 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 EBGL.

Article 16 (1) of the EBGL 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 SOGL 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 SOGL 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 and will be part of the terms and conditions.

3.4 Balancing capacity cooperation

3.4.1 EBGL Articles on balancing capacity cooperation

In contrast to the mandatory requirement to build one single market for each balancing energy product, the EBGL does not require to build one single cooperation for balancing capacity. Article 38 of the EBGL allows TSOs to start a balancing capacity cooperation on a voluntary basis. Therefore, the requirements for harmonisation of standard balancing capacity products are less compared to the requirements for harmonisation of a standard balancing energy product.

Secondly, the EBGL allows different methodologies on how to apply a balancing capacity cooperation. 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 EBGL provide the requirements and especially the different options each balancing capacity cooperation has when applying the different methods for cross zonal capacity allocation.

The consequences are that it is not possible to harmonise several requirements of a balancing capacity product since it would interfere with several other articles of the EBGL.

3.4.2 Requirement of balancing capacity cooperation

For each balancing capacity cooperation where two or more TSOs are exchanging balancing capacity, Article 33.3 of the EBGL requires to use standard balancing capacity bids. Since each balancing capacity cooperation can apply its own common and harmonised rules and processes according to Article 33.1 of the EBGL, not all requirements of one single standard balancing capacity product for aFRR, for mFRR and for RR can be harmonised. Secondly, if TSOs cannot rely on available CZC after intraday cross-zonal gate closure according to Article 33.4(a) of the EBGL, they must apply one of the three CZC allocation methodologies according to Article 33.4(b) of the EBGL. The three different methodologies are:

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

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, not all requirements of one single standard balancing capacity product for aFRR, for mFRR and for RR can be harmonised.

Since the EBGL allows different possibilities when to procure balancing capacity (from year ahead until in between SDAC and SIDC), requirements on gate closure time and balancing capacity validity period of balancing capacity bids cannot be harmonised and they may differ for each cooperation of balancing capacity.

3.4.3 Contracting period and balancing capacity gate closure time

Application of CZC allocation based on economic efficiency according to Article 42(1) of the EBGL 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 EBGL, 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 EBGL, 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 balancing capacity of balancing capacity bids in order to not violate the CZC allocation methodologies of Article 40, Article 41, and Article 42 of the EBGL.

3.4.4 Balancing capacity validity period

Article 42(1) of the EBGL, the economic efficiency allocation, requires TSOs to procure balancing capacity with a contracting period of more than one day. A contracting period (also known as auction 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.

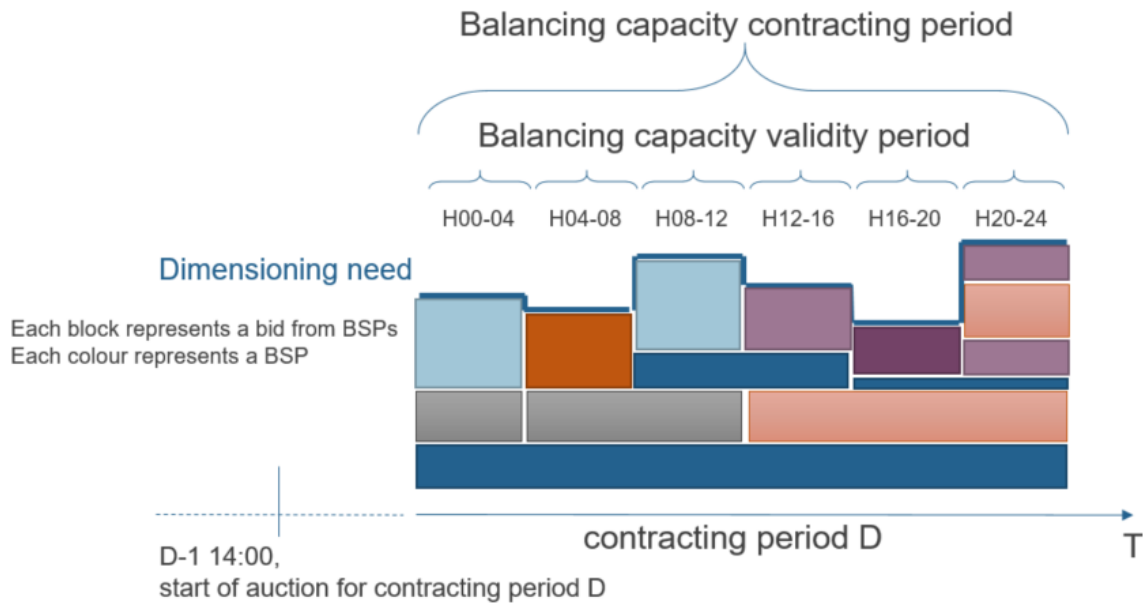


Figure 1: Example of clearing of a capacity auction with balancing validity period shorter than contracting period

In Article 41(1) and Article 40(1) of the EBGL, 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 EBGL.

Consequently, possible balancing capacity validity periods require to have at least one balancing capacity validity period per product that does not exceed 24 hours. Within each balancing capacity cooperation that applies a certain cross zonal capacity allocation methodology pursuant to Article 40, 41, or 42 of the EBGL, the balancing capacity validity period should be harmonised.

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 day 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 Characteristics of standard balancing capacity product

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

The TSOs identified 4 characteristics:

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

4.1 Balancing capacity validity period

For every balancing capacity auction, balancing capacity validity periods shall be listed in terms and conditions. Certain principles of balancing capacity validity periods for FRR and RR standard products that shall be exchanged or shared among 2 or more TSOs are documented in the CZCA methodology according to Article 40 of the EBGL, and if applicable, according to Articles 41 and 42 of the EBGL (see Ch. 3.4.4.).

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

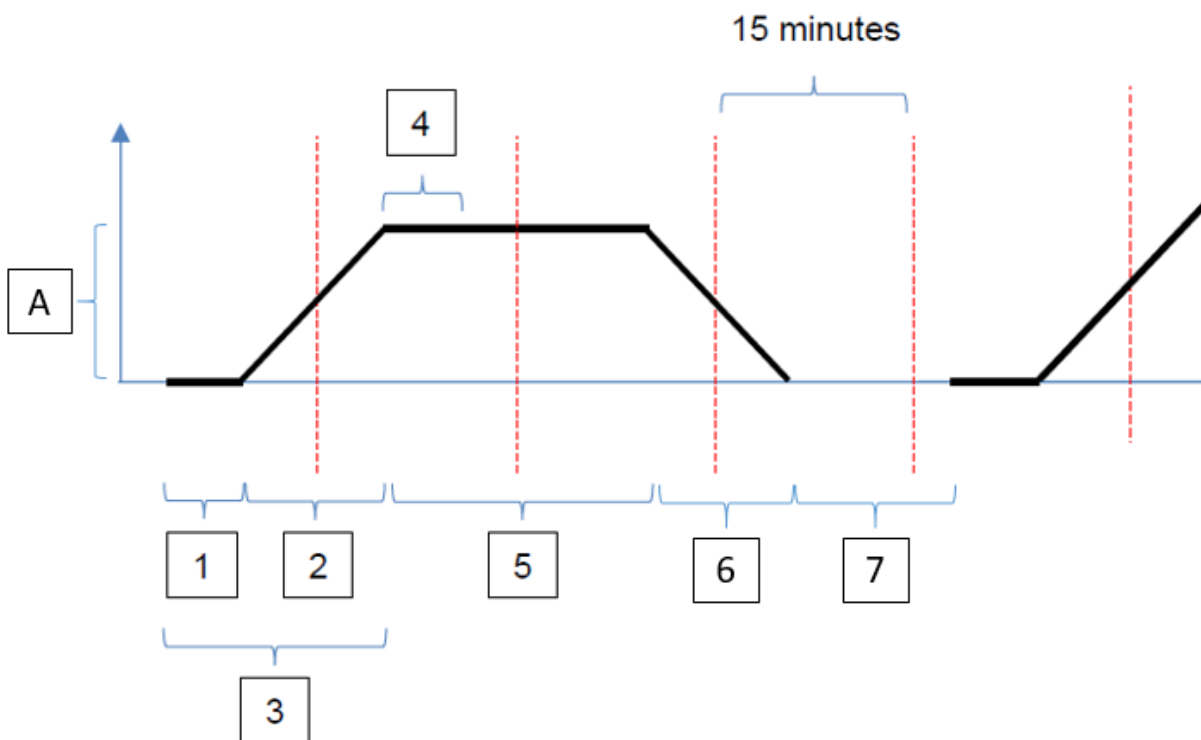


Figure 2: (a) The minimum duration between the end of deactivation period and the following activation

The EBGL Article 25(5) foresees that BSPs shall submit a minimum duration between the end of deactivation period and the following activation. The TSOs considers 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 each TSO (and approved by relevant NRA), one 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 EBGL 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.

4.3 Maximum delivery duration

The introduction of the maximum delivery duration characteristics further facilitates the participation of new technologies in the balancing capacity market by taking into account the constraints from limited energy unit.

By default, the maximum delivery duration should be equal to the balancing capacity validity period but may be lower to the balancing capacity validity period if defined in the terms and conditions for BSPs.

4.4 Direction of balancing capacity: upward or downward

According to Article 32.3 of the EBGL, 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 balancing capacity product 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 balancing energy products 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. BSPs committing themselves to withhold (part of their) capacity for the connecting TSO and mandatory offer this capacity as balancing energy with a least the same volume is a service of the BSP for the TSO and consequently this should be remunerated by the TSO to the BSP.

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 energy products 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).

If a TSO participates in a balancing capacity cooperation, such maximum bid quantity must be harmonized amongst all the TSOs of the cooperation.

5.3 Bid divisibility

As required by the EBGL 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.

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

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 EBGL, 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 energy product. BSPs may also be required to provide additional locational information on the bids depending on the terms and conditions. Indeed, some TSOs may require more accurate information for their internal process.

Location is not a characteristic of capacity product as it cannot be used to differentiate one capacity from the other. It is however true that in the framework of balancing capacity cooperation, location is necessary to know the location to fulfil the requirement of local contracting.

6 Implementation timeline

A standard balancing capacity product is required to be procured by TSOs the moment two or more TSOs start a balancing capacity cooperation according to Article 33.3 of the EBGL. A balancing capacity cooperation means that at least two TSOs are exchanging balancing capacity or sharing reserves. This implicitly means the moment CZC is allocated for the exchange of balancing capacity or sharing of reserves by two or more TSOs, standard balancing capacity products must be procured by all TSOs in the balancing capacity cooperation.

Since the implementation of a balancing capacity cooperation is voluntary, there is no common timeline for implementation of a standard product balancing capacity.

7 Public Consultation

To fulfil the EBGL requirements, this proposal shall be subject to consultation in accordance with Article 10(3) of the EBGL.

Therefore, TSOs would like to receive the input from the stakeholders and market participants on this important feature for the future European balancing capacity market. As a result, ENTSO-E hold this open on-line consultation.

ENTSO-E intends to hold a Stakeholder Workshop on standard product balancing capacity on 6th of June in which the content of this SPBC proposal will be presented.

The last phase will entail the assessment of all the stakeholder comments collected, along these events, in order to be discussed among all TSOs. As per the agreement reached by all TSOs, a new version of this proposal will be drafted and submitted for approval to the relevant NRAs and to the Agency on December 18, 2019.