Elia's methodology to determine the required balancing capacity (LFC Means)

October 4, 2019

Contents

THE BELGIAN TRANSMISSION SYSTEM OPERATOR, TAKING INTO ACCOUNT THE FOLLOWING,

Whereas

(1) Article 228 §3 of the Federal Grid Code (hereafter referred to as FGC) specifies that:

   a. the transmission system operator shall submit, after a public consultation, a proposal for approval (hereafter referred to as “LFC Means”) containing the methodology to determine for each of the balancing services, the balancing capacity that has to be reserved within the ELIA LFC block.

   b. this proposal shall be submitted for approval at the same time as the LFC block Operational Agreement (hereafter referred to as “LFCBOA”), which is the proposal specified in Article 6(3)e of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as “SOGL”).

   c. the methodology in the proposal shall be based on an analysis of the optimal provision as specified in Article 32(1) of Commission Regulation (EU)2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (hereafter referred to as “EBGL”).

(2) The balancing capacity for FCR to be reserved by Elia is determined by all TSOs of the synchronous zone in application of the provisions of Article 153 of the European guidelines SOGL and specified in the Synchronous Area Operational Agreement (hereafter referred to as SAOA).

(3) The LFCBOA referred to in Article 6(3)e determines the methodology to determine the needs for reserve capacity other than FCR. It is developed by the Transmission System Operator of the LFC block in accordance with Article 119 of the SOGL. The LFCBOA is submitted by Elia System Operator (hereafter referred to as “ELIA”) for approval in accordance with Articles 6(3)e and 119(2) of the SOGL.

(4) Pursuant Article 32(1) of the EBGL, each TSO shall perform an analysis on optimal provision of reserve capacity aiming at minimization of costs associated with the provision of reserve capacity. This analysis shall take into account the following options for the provisions of reserve capacity:

   a. procurement of balancing capacity within control area and exchange of balancing capacity with neighboring TSOs, when applicable;

   b. sharing of reserves, when applicable;

   c. the volume of non-contracted balancing energy bids which are expected to be available both within their control area and within the European platforms taking into account the available cross-zonal capacity.

(5) Pursuant Article 228 §3 of the FGC:

a. if the period of purchase of balancing capacity is equal to or longer than one year, the result of the practical application of the dimensioning rules shall be submitted by the TSO to the NRA for approval;

b. for all other periods of purchase of balancing capacity, the volumes of balancing capacity following the application of the dimensioning rules by the TSO shall be notified immediately by the TSO to the NRA.

SUBMITS THE FOLLOWING PROPOSAL FOR APPROVAL TO THE CREG:

TITLE 1 Introduction

1. Pursuant to Article 228 §3 of the FGC, this document (hereafter referred to as “LFC Means”) is a proposal developed by Elia regarding the methodology for determining the volumes of balancing capacity for aFRR and mFRR for the Elia LFC block. The determination of the volumes of balancing capacity takes into account the volume of reserve sharing and non-contracted balancing energy bids.
2. Where possible, the volumes of different types of balancing services are calculated and proposed based on the above-mentioned methodology.

TITLE 2 General Provisions

Article 1. Objective

1. By determining the balancing capacity to be reserved, the LFC Means contributes to the general objectives as defined in Article 3 of the EBGL:
   a. fostering effective competition, non-discrimination and transparency in balancing markets;
   b. enhancing efficiency of balancing as well as efficiency of European and national balancing markets;
   c. integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security;
   d. contributing 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 day-ahead, intraday and balancing markets;
   e. ensuring 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;
   f. facilitating the participation of demand response including aggregation facilities and energy storage while ensuring they compete with other balancing services at a level playing field and, where necessary, act independently when serving a single demand facility;
   g. facilitating the participation of renewable energy sources and support the achievement of the European Union target for the penetration of renewable generation.

Article 2. Definitions and interpretations

1. For the purposes of this LFC Means, the terms used have the meaning of the definitions included in Article 3 of the SOGL and in Article 2 of the EBGL.

2. All references to other legislation is explicitly defined. All articles without explicit reference to other legislation concern articles in this LFC Means.

3. “mFRR Standard” is defined as the mFRR Capacity Product characterized by an unlimited activation time and no neutralization time, as specified in the Terms and Conditions for balancing service providers for manual Frequency Restoration Reserve (hereafter referred to as the T&C BSP mFRR)

4. “mFRR Flex” is defined as the mFRR Capacity Product characterized by a limited activation time and a neutralization time between two successive activations, as specified in the T&C BSP mFRR;

TITLE 3 Methodology

Article 3. Dimensioning of the reserve capacity for aFRR and mFRR

1. Elia determines the value for positive and negative reserve capacity for aFRR and mFRR needs following the methodologies specified in Article 8 and Article 9 of the LFCBOA:
    a. Elia determines one fixed value for the positive and negative aFRR needs based on the static dimensioning methodology as specified in the last approved version of the LFCBOA.
    b. Elia determines for each of the 6 periods of 4 hours a value for positive and negative mFRR needs for the next day based on the dynamic dimensioning methodology as specified in the last approved version of the LFCBOA.

Article 4. Sharing of reserves

1. In line with Article 32(1) of the EBGL and Article 10 of the LFCBOA, Elia takes into account the sharing of reserve capacity with neighbouring TSOs in the dimensioning of its balancing capacity. This only concerns sharing agreements on mFRR with other TSOs as Elia does not have sharing agreements on aFRR with other TSOs.
2. Elia disposes of reserve sharing agreements on mFRR with RTE, TENNET and NGET that facilitate the sharing of mFRR with neighbouring TSOs. Each of these agreements is foreseen to be operational in 2020 and will facilitate a positive and negative shared capacity of 350 MW.
3. The maximum shared volume for positive reserve on mFRR that can be taken into account is calculated pursuant Article 10(1) of the LFCBOA.
4. The maximum shared volume for negative reserve on mFRR that can be taken into account in the dimensioning is calculated pursuant Article 10(2) of the LFCBOA.

5. Pursuant to Article 10(3) of the LFCBOA, ELIA takes into account restrictions on operational security limits and the mFRR availability requirements :
    a. these reserves can only be activated under exceptional conditions described in the operational agreements governing the sharing of the mFRR reserve to maintain the balance in the LFC block for a limited number of hours and thus cover part of the mFRR needs. They are generally activated after using all the other available balancing adjustment means (the non-contracted balancing energy bids and the balancing capacity);
    b. these reserves are never guaranteed as the availability of cross-border capacity is not ensured and are therefore subject to the operational availability of interconnection capacity at borders, network operating safety limits (internal network congestions) and reserve sharing service availability, as specified in the agreements with other TSOs governing mFRR sharing.
6. Following paragraph 5 of this article, and a reduction of the reliability level determined by the percentile of the probability distribution of the potential positive and negative LFC block imbalances as specified in Article 8(2) of the last approved version of the LFCBOA : from 99.9% (in 2018) to 99.0% (in 2019), ELIA determines as an act of prudence and in order to limit the planned activations, as the activation of the sharing reserves must remain an exceptional measure:
    a. the positive sharing capacity included in the dimensioning to 50 MW;
    b. the negative sharing capacity included in the dimensioning to 350 MW.

Article 5. Non-contracted balancing energy bids

1. ELIA determines the volume of non-contracted balancing energy bids that can be taken into account to cover the required reserve capacity for FRR based on an analysis of the historical availability of these non-contracted balancing energy bids for aFRR and mFRR for a period of two years (from July 1, 2017 to June 30, 2019).
2. ELIA has currently no mechanisms for the exchange of non-contracted balancing energy bids for aFRR or mFRR within the European platforms.
3. ELIA determines the availability of all non-contracted balancing energy bids for aFRR. It is found that this availability does not exceed 75% (incremental bids) or 43% (decremental bids) of the observed quarter-hours.
4. ELIA determines the availability of all non-contracted balancing energy bids for mFRR. ELIA will only take into account non-contracted balancing energy bids for mFRR in the dimensioning if the volume of non-contracted balancing energy bids for mFRR can, together with the volume of reserve sharing for mFRR, entirely cover the entire mFRR needs.
5. The calculation of the available volume of non-contracted balancing energy bids for mFRR is based on the sum of different types of positive and negative non-contracted balancing energy bids per category for each quarter-hour of the data referred to in Article 5(1). This calculation :

a. includes all incremental and decremental bids of non-contracted balancing energy bids on ‘coordinable’ thermal units and ‘bidladder’:

   i. ‘coordinable’ refers to characteristic of a Delivery Point DP_{SU} which is technically capable of modifying its power injection on the Elia Grid upon request by ELIA, within 15 minutes;

   ii. ‘bidladder’ refers to non-contracted balancing energy bids on delivery points without bidding obligation as specified in Article 226 of the FGC;

b. includes all bids from pump storage units :

   i. incremental bids only during morning (04h00– 08h00) due to energy constraints;

   ii. decremental bids except during morning (04h00– 08h00) due to energy constraints.

c. includes all expected decremental bids from wind power in 2020, based on historic production nominations, taking into account the increasing capacity between 2017-19 and 2020.

6. The calculation of the available volume of non-contracted balancing energy bids is complemented with the available FRR sharing capacity through the available interconnection capacity (ATC) after intra-day for the same time period. This remaining interconnection capacity is limited to :

   a. the shared capacity per border as specified in Article 4(2);

   b. the positive and negative shared capacity as specified in Article 4(6).

   The analysis of the availability of non-contracted balancing energy for mFRR shows that:

   a. no significant positive capacity is available;

   b. substantial decremental volumes of 800 MW - 900 MW are expected to be available for 96.3 % - 95.1% of the time and this level of availability is expected to further increase.

Article 6. Balancing Capacity

1. As specified in Article 4(1), Elia does not dispose of reserve sharing for aFRR. As specified in Article 5(2), non-contracted balancing energy bids for aFRR do not have sufficient availability to cover part of the required reserve capacity for aFRR. Therefore, the volume of "aFRR balancing capacity / secondary reserve" is determined equal to the value of required reserve capacity following Article 3(2), being 145 MW. The daily procurement process and product requirements are specified in the T&C BSP aFRR.

2. Elia will cover the required remaining positive reserve capacity for mFRR (after taking into account reserve sharing and non-contracted balancing energy bids as specified in Article 4 and Article 5) for a volume “mFRR balancing capacity / tertiary reserve” equal to the value of required remaining reserve capacity. The procurement process and product requirements are specified are specified in T&C BSP mFRR.

3. Elia has currently no mechanisms for the exchange of balancing capacity for aFRR or mFRR with neighboring TSOs.
4. Elia will cover the required positive reserve capacity for mFRR with a capacity of mFRR Standard determined by the minimum of a threshold determined at 490 MW and the required mFRR balancing capacity. The remaining required positive reserve capacity, if positive, is procured by means of the products mFRR Standard and mFRR Flex.
5. The positive balancing capacity on mFRR to be procured is published each day before 7 AM, and notified according to the CREG following Article 228 §3 2° of the FGC.
6. The minimum capacity specified in paragraph 4 will be increased to 640 MW as from July 1, 2020 and to the full mFRR balancing capacity as from January 1, 2021 to be procured following upon agreement with the regulator concerning the phase out the “flex” product.
7. Elia will not procure any negative mFRR balancing capacity since the required negative reserve capacity for mFRR is expected to be covered by available reserve sharing and available non-contracted balancing energy bids as specified in Article 3 with an acceptable probability.
8. Elia will carry out a yearly ex-post analysis in the first quarter of each year based on historical data from the precedent year on and assess whether the positive and negative FRR needs have been sufficiently covered by the resources available. For the purposes of this analysis, Elia will compare the results of the positive and negative FRR needs based on the methodology in the LFCBOA and compare this with the available resources of aFRR (contracted aFRR balancing capacity) and mFRR (non-contracted balancing energy offers and sharing of FRR reserves).

TITLE 4 Volumes as from January 1, 2020

Article 7. Volumes of balancing capacity before implementing daily procurement

1. Until the entry into force, as specified in Article 8, of the methodology specified in TITLE 3, being the daily procurement of reserve capacity, Elia will extend the use of the volumes for balancing capacity as approved for 2019.
    a. 145 MW aFRR
    b. 844 MW of mFRR with at least 314 MW mFRR standard

TITLE 5 Final Provisions

Article 8. Timing for implementation

1. The LFC means will enter into force after its approval by the CREG :
    a. TITLE 3 will enter into force at the same day as the entry into force of the T&C BSP mFRR;

b. all other articles will enter into force as from January 1, 2020. Until that date, the methodologies and results of the previous version remain valid.

Article 9. Language

1. This document is published in English, Dutch and French. In case of discussion on interpretation of the methodologies presented in the LFCBOA, the French and Dutch version prevail over the English version.