PSE S.A. REPORTING ON BALANCING

PURSUANT TO THE ARTICLE 60 OF THE COMMISSION (EU)

REGULATION 2017/2195 OF NOVEMBER 23, 2017 ESTABLISHING A GUIDELINE ON ELECTRICITY BALANCING

EDITION 2022 FOR THE PERIOD 2020-2021

1. Introduction

Polskie Sieci Elektroenergetyczne S.A. (PSE) is the sole transmission system operator in Poland responsible for Polish Balancing Market launched in September 2001. Geographically Polish LFC block, LFC area, scheduling areas and bidding zones overlap with Polish borders. Polish LFC area is a part of the Continental Europe synchronous area.

a) General information about market design and reserve dimensioning: central / self-dispatch model, types of reserve used to balance the system and dimensioning, specific requirements defined in the terms and conditions for BSP/BRP[1] according to Articles 18(5-7) (information or requirement on unused capacity, requirements with regard to the BRP position, etc.).

The Polish Balancing Market is based on the Central Dispatching Model, in which the TSO is responsible for selecting and dispatching the capacity of all Centrally Dispatched Generation Units. The balancing market in Poland covers the 400 kV and 220 kV transmission networks, connection points for centrally dispatched units to the 110 kV and distribution network and points in the distribution network to which balancing market participants are connected. PSE uses the following types of reserves:

- Frequency Containment Reserve (FCR)
- Frequency Restoration Reserve with Automatic activation (aFRR)
- Replacement Reserves (RR)

The reserves dimensioning in Poland is based on the probability of generation units outage, demand forecast uncertainty, historical values of needed reserves and maximum generation units size. The required reserves capacity is as follows:

- FCR: + 170 MW/ - 170 MW
- aFRR: + 500 MW/ - 500 MW
- RR: +9% of hourly system demand minus reserves available in FCR and aFRR

Each balancing service provider (BSP) should have at least one scheduling unit that actively participates in the balancing market and a dedicated IT system used for the communication between BSP and TSO, e.g. to activate the balancing energy. BSP provides balancing services through the scheduling units. Only the scheduling unit representing a generation unit with appropriate technical capabilities can

[1] Including the rules for suspension and restoration of market activities, in accordance with Article 36 of the EB Regulation, and the rules for settlement in case of market suspension pursuant to Article 39 of Regulation (EU) 2017/2196 once approved, in accordance with Article 4 of the EB Regulation.

provide the frequency containment reserve and frequency restoration reserve. The replacement reserve can be provided by generation , storage and load units.

Each integrated scheduling process bid submitted by the BSP is assigned to the specific scheduling unit. Because the imbalance area is equal to the scheduling unit, the balance responsible party (BRP) owning these scheduling units is responsible for balancing all bids provided for that unit.

The evaluation of the provisions of balancing services pursuant to Article 18(5)(f) of EB regulation is performed based on the real-time measurements.

PSE uses neither standard nor specific products within the meaning of EB regulation. Because PSE has not yet joined any of the platforms for the exchange of balancing energy, currently PSE only uses local products based on the integrated scheduling process bids submitted by BSPs.

The definition of balancing responsibility for each connection is designed in such a way as to avoid any gaps or duplication of balancing liability for different market participants providing services under that connection. Each balancing market participant is a BRP, while imbalance area is defined on scheduling unit level. The only entity responsible for balancing the interconnections with the transmission systems of other operators is PSE that bears full responsibility for balancing them.

Each BRP is obliged to deliver to the connecting TSO the information about the energy contracts concluded at the scheduling unit level with other BRPs and the measurement data for each BRP's scheduling unit.

One imbalance price is determined for the whole scheduling area; therefore, the imbalance price area is equal to the scheduling area.

The integrated scheduling process in Poland starts in the day-ahead timeframe and the integrated scheduling process bids are submitted by BSPs no later than by 14:30 the day before the electricity supply. Submission of integrated scheduling process bid for whole available capacity is mandatory for all centrally dispatched generation units. Integrated scheduling process bids submitted in the day-ahead market horizon may be corrected in the intra-day balancing process till h-45.

The settlements of balancing services and imbalance energy are performed for each decade of the month. Preliminary settlements data are available in the day d+1, while final ones in the day d+4. Settlements correction is possible in the following months: m+2, m+4, m+15.

b) General information about the market size: number of BSP(s), BRP(s), information about historical/new market players, DSR/RES/Batteries participation.

Market participant	Number of market participants in 2020	Number of market participants in 2021
BSP	24 entities 103 scheduling units	26 entities 111 scheduling units
BRP	121	120
DSR	1	1
Storage	-	2 entities 18 scheduling units
RES	-	-

2. Progress, timeline towards joining the European platforms and / or balancing capacity cooperations

European balancing platform for the activation of balancing energy	Accession timeline	Reasoning for derogation and status of the derogation (granted or not)
RR Platform	2023	Changes in internal balancing market process
aFRR Platform	2024	Changes in internal balancing market process
mFRR Platform	2024	Changes in internal balancing market process
IN Platform	Already connected	

3. Evolutions of the terms and conditions for BRPs and BSPs related to the EB regulation implementation during the last 2 calendar years and further evolutions foreseen for the Future

Evolution of the terms and conditions for BSP	
Content (see below) **Changes in internal balancing market process**	Status (not submitted, submitted, approved) and timeline Not submitted

Evolution of the terms and conditions for BRP	
Content (see below) **Changes in internal balancing market process**	Status (not submitted, submitted, approved) and timeline Not submitted

Question:	Please select an option:
Q1. Was 15-min Imbalance Settlement Period (ISP) implemented by 1 January 2022?	**Derogation**
1.1. If response in Q1 is "derogation" or "exemption", until when was this derogation/exemption granted?	Will be implemented with modification of internal balancing market
Q2. Has your TSO made use of additional components pursuant ISH Methodology Art 9(6) as per 1 January 2022?	**No**
2.1. Scarcity component?	Not used
2.2. Incentivizing component?	Not used
2.3. Component related to financial neutrality of the TSO?	Not used
Q3. Has your TSO made use of dual pricing as per 1 January 2022?	**No**
3.1. Condition (a)	Not used
3.2. Condition (b)	Not used
3.3. Condition (c)	Not used
3.4. Condition (d)	Not used
3.4. Condition (e)	Not used

4. Summaries and main results of the analysis of Articles 60(2)(a-f):

- Dimensioning and balancing capacity procurement in accordance with Articles 60(2)(b), 60(2)(c), 60(2)(e) and 60(2)(f)

1. Analysis of the dimensioning of reserve capacity, including the justification and explanation for the calculated reserve capacity requirements, in accordance with Article 60(2)(b) of EB regulation.

The reserves dimensioning is based on the probability of generation units outage, demand forecast uncertainty, historically required reserves volumes and maximum generation units size. Availability of reserves is monitored constantly looking ten days in advance. The required level is expressed as

percentage of forecasted demand and it lowers as it approaches real time. Currently required values are as follows:

- Daily Coordination Plan (9%)
- from day d+2 to day d+9 (14%)
- From day d+10 (18%)

The total required reserve capacity consists of: 170 MW FCR, 500 MW aFRR and is padded to the total required value by RR.

2. Analysis of the optimal provision of reserve capacity, including the justification of the volume of balancing capacity in accordance with Article 60(2)(c) of the EB regulation.

The volume of required reserves narrows down approaching to the real time when the uncertainties decreases, which ensure that its level is optimal and ensure systems security while avoiding oversizing. Moreover, because energy and reserves are acquired jointly as a part of the integrated scheduling process taking place after the closing of the SDAC market, the reserves volume is not excluded from the day-ahead market. This way provision of reserves capacity does not influence negatively wholesale energy market.
Joint provision of balancing energy and reserves as part of the co-optimization process ensures optimal use of available resources to obtain both energy and reserves while safeguarding system security.

3. An explanation and a justification for the procurement of balancing capacity without the exchange of balancing capacity or sharing of reserves in accordance with Article 60(2)f of the EB regulation.

PSE currently does not procure balancing capacity, required reserves volume is ensured in the integrated scheduling process.

4. Analysis of the opportunities for the exchange of balancing capacity and sharing of reserves in accordance with Article 60(2)e of the EB Regulation.

PSE does not contract balancing capacities, and consequently there is no possibility to exchange it.
Sharing reserves by the PSE with neighbouring TSOs would be inefficient due to significant uncertainties arising from the lack of a sufficiently coordinated mechanism for the allocation of transmission capacity in the continental Europe region. Unscheduled power flows being the consequence of the meshed transmission grid in central Europe result in the inability to share power reserves due to the dynamic nature of unplanned loop flows and therefore the inability to ensure in advance that transmission capacity is available to provide electricity from shared reserves. Moreover, since PSE acquires reserves in the day-ahead timeframe within the integrated scheduling process while neighbouring TSOs do it in a longer time horizon, the possibility of reserves sharing is limited. However, even not sharing reserves, in case of urgent need PSE may provide energy to neighbouring TSOs using operational measures like Agreed Supportive Power/ Emergency Deliveries.

- Specific products in accordance with Articles 26(1) from (a) to (f) and 60(2)(a) and 60(2)(d)

PSE does not use neither standard nor specific products within the meaning of the Regulation 2017/2195. Because PSE has not yet joined any of the platforms for the exchange of balancing energy, at present PSE only uses local products based on the integrated scheduling process bids submitted by BSPs.