Proposal for modification of the tariff for maintaining and restoring the residual balance of individual access responsible parties[1].

1. Context and legal basis

In the fourth quarter of 2021, Elia and stakeholders have engaged in bilateral and workshop meetings to discuss the elevated system imbalance costs and possible mitigations. During the workshop of October 11, stakeholders put forward the large contribution of the α parameter in the system imbalance cost. Several stakeholders requested an assessment and a potential revision (or even suspension) of the α parameter.

Elia's full assessment of the α parameter, together with a proposal for a recalibration of the α parameter, can be found in annex 2. Considering the current energy market context, with elevated system imbalance prices, Elia focused on a solution that can be implemented on short notice to maximize the effect for the market parties.

On the 7th of November 2019, the CREG approved[2] the tariff proposal for the period 2020-2023 introduced by Elia. This proposal included the determination of the tariff for maintaining and restoring the residual balance of individual access responsible parties. That tariff is partly determined by the α parameter**.** Due to market evolutions, Elia proposes to adapt this parameter for the remaining of the tariff period 2020-2023.

This public consultation is organized in accordance with the agreement regarding the procedure for the introduction and approval of the tariff proposal, as agreed and signed between CREG and Elia on 6 February 2018 and the tariff methodology 2020-2023 as adopted by the CREG on the 28 June 2018.

Taking into account that the shorter the implementation trajectory, the more positive the effect is for market parties, Elia limits the consultation period to two weeks with the objective to implement the recalibrated α parameter as soon as possible in 2022. During the consultation period, a workshop with stakeholders is planned to present and discuss the proposal.

2. Justification for the proposed recalibration of the α parameter

Firstly, in the assessment of the α parameter in 2020 and 2021 for a period from January 1st to October 24th, observations confirm an increasing impact of the α parameter on the imbalance costs for BRPs. The increasing frequency of periods with a high α parameter is found to be driven by periods during which the system imbalance is negative (system shortages). While it is too soon to confirm any structural trends on increasing system imbalances, it is already observed that the higher imbalances in 2021 are strongly related to the maintenance period of Coo-Trois-Ponts.

Secondly, when assessing the impact of the α parameter on 'implicit balancing' by the market parties, it is concluded that it is nearly impossible to isolate the effect of the α parameter from the market's behaviour. However, several analyses of the 'implicit balancing' in relation to the imbalance prices in general confirm that higher prices relate to higher market reactions. This seems to confirm the usefulness of the α parameter and is also in line with the observation that the system imbalance has remained relatively stable despite the increase in variable renewables installed.

[1] In this document, Access responsible party = Balancing responsible party (BRP)
[2] Decision(B)658E/62

Thirdly, when assessing the relation between the α parameter and the imbalance price, it is confirmed that several periods, and particularly in 2021, occur where the α parameter is high while the marginal incremental (decremental) price is already very high (low). It can be questioned if a price adder such as the α-parameter in such conditions is effective.

Based on its analysis, Elia proposes to:

1. maintain the α parameter during periods when imbalance price levels are low as it fortifies incentives for implicit balancing, benefiting the management of system imbalances and reserve dimensioning. In addition, it provides strong incentives for BRPs to balance their position or help the system during exceptional balancing events (e.g. offshore storm risks) and hereby avoiding the use of exceptional balancing measures. In addition, after implementation of the EU balancing platforms, the α parameter can maintain the incentives during periods of low imbalance prices (driven by low cross-border marginal prices on the regional balancing market) while (local) system imbalances are high;

2. recalibrate the α parameter to temper its value during periods when imbalance price levels are high as the effect of incentivizing additional implicit balancing actions by means of the α parameter is expected to wear out at higher price levels. Tempering the α parameter during these periods will reduce the impact of the α parameter on the total imbalance costs without compromising on the main objectives of the α parameter.

3. Proposition of the adjustment of the α parameter

In order to mitigate the incentivizing α parameter during periods with elevated marginal incremental (MIP) or decremental price (MDP), Elia proposes to introduce a calibration parameter (cp) which is implemented as a multiplicator to the original α parameter :

$$\alpha(t)\ (EUR/MWh) = \left(a + \frac{b}{1+\exp\left(\frac{c-x}{d}\right)}\right) * \boldsymbol{cp}$$

The **cp** is determined by the value of MIP and MDP according to:

- If SI[3] (t) ≤ 0 ;
  - If MIP (t) ≥ 400 €/MWh; 0
  - If 200 €/MWh ≤ MIP (t) < 400 €/MWh; $(400 - MIP(\mathrm{t}))/200$
  - If 0 €/MWh ≤ MIP (t) < 200 €/MWh; 1
  - If -200 €/MWh ≤ MIP < 0 €/MWh; $(MIP(\mathrm{t}) + 200)/200$
  - If MIP (t) < -200 €/MWh ; 0

- If SI (t) ≥ 0 ;
  - If MDP (t) ≥ 400 €/MWh; 0
  - If 200 €/MWh ≤ MDP(t) < 400 €/MWh; $(400 - MDP(\mathrm{t}))/200$
  - If 0 €/MWh ≤ MDP(t) < 200 €/MWh; 1
  - If -200 €/MWh ≤ MDP(t) < 0 €/MWh; $(MDP(\mathrm{t}) + 200)/200$
  - If MDP(t) < -200 €/MWh ; 0

The thresholds are justified following the observations of current market reactions as presented in Annex 2:

[3] SI refers to the system imbalance in the quarter-hour period t

- additional market reaction at imbalance prices higher than 400 €/MWh is observed to be limited. This is also confirmed by an analysis on the day-ahead market prices for the calibration of the strike price for the Belgian CRM which shows that most elastic reaction of the market will already have taken place at a price of 300 €/MWh[4];
- additional market reaction at imbalance prices lower than -200 €/MWh is expected to be limited as generation support schemes for wind power do not exceed 107 €/MWh. Solar power (with support schemes not exceeding 450 €/MWh) is currently not assumed to play a substantial role in balancing due to its decentral nature;
- the gradual adaption of the calibration parameter is set over a range of 200 €/MWh in order to avoid discontinuities at a maximum α parameter of 200 €/MWh.

4. Impact of the adjustment of the α parameter

The impact of the calibration parameter is assessed by means of simulations of the new α parameter in 2020 and 2021 (cf. Annex 2). Results show how the total imbalance cost between January 1 – October 24, 2021 would have been reduced from 19.2 M€ to 12.2 M€ (i.e. to a level similar to 2020).

[4]This analysis is realized by E-CUBE looking at day-ahead market prices for the construction of the calibration curve of the strike price for the Belgian CRM. Such curve highlights that a price of 300 €/MWh on the Day-ahead market corresponds to a minimum of 85% of reaction of elastic volume on the market (with prices strictly below the market price cap and strictly above 0 €/MWh) for the winters 18-19, 19-20, 20-21. In other words, these results indicate that most of the elastic reaction of the market will already have taken place at such price. More information on this price of 300 €/MWh are available at the following link : https://www.elia.be/-/media/project/elia/elia-site/users-group/ug/adequacy-working-group/20211125_dy2026---y-4-auction---calibration-report.pdf

Annex 1: Modification of the tariff for maintaining and restoring the residual balance of individual access responsible parties (track changes).

Tariffs for maintaining and restoring the residual balance of individual access responsible parties[5]

Period 2020-2023

The tariff terms and conditions established by the CREG decision dated 7 November 2019 shall apply from 1 January 2020 to 31 December 2023 inclusive.

The tariff for maintaining and restoring the residual balance of individual access responsible parties is based on the costs incurred by Elia for maintaining balance between generation and consumption in the Belgian control area for the quarter-hour in question and is intended to appropriately incentivise grid users to balance their injection and offtake levels, as per Article 12(5)(10) of the Electricity Act of 29 April 1999 and as per paragraphs 4.2(2), 4.4, 4.5 and 4.6 of Annex 2 to the Tariff Methodology of 28 June 2018.

[5] Access Responsible Party = balance responsible or Balance Responsible Party (BRP)

1. Definitions

The **imbalance** of a given balance responsible party is the quarter-hourly difference between its total injections at the balance responsible party's perimeter for the given quarter-hour, and total offtakes at the balance responsible party's perimeter for the given quarter-hour, including active grid losses attributable to and compensated by said access responsible party. The concepts of 'injection' and 'offtake', as well as the imbalance perimeter are stipulated in the balance responsible party's Contract.

The **Net Regulation Volume** (NRV), as defined in the functioning rules of the market governing compensation for quarter-hourly imbalances, reflects, for a given quarter-hour, the net control volume of energy (upward and downward) which Elia applies in order to maintain balance in the Elia control area. A plus or minus sign in front of the NRV indicatives, respectively, an overall energy shortage or energy surplus in the Belgian control area. If the NRV is zero, the control area is assumed to have a deficit.

The NRV is adjusted to take into account, where applicable, activations of the strategic reserve, in accordance with the principles described in the functioning rules governing the operation of the strategic reserve.

The **Area Control Error**[6] (ACE) is the current difference between the scheduled values (‘program’) and the actual values (‘measurements’) of power exchanged in the Belgian control area, taking into account the impact of frequency deviations.

The imbalance of the system or the Control Area Imbalance (hereinafter the ‘System Imbalance’ or ‘SI’) is, during a given quarter-hour, equal to the Area Control Error minus the NRV:

System Imbalance = ACE – NRV

The marginal price for upward activation reflects, for a given quarter-hour, the price of the most expensive energy for upward regulation in order to compensate for imbalance in the Belgian control area during that quarter-hour.

The marginal price for upward activation is determined in the the functioning rules of the market governing compensation for quarter-hourly imbalances that Elia has established in accordance with the Federal Grid Code.

The marginal price for downward activation reflects, for a given quarter-hour, the price of the most expensive energy for downward regulation in order to compensate for imbalance in the Belgian control area during said quarter-hour.

The marginal price for downward activation is determined in the the functioning rules of the market governing compensation for quarter-hourly imbalances that Elia has established in accordance with the Federal Grid Code.

[6] Defined in Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

2. Tariff for maintaining and restoring the residual balance of individual access responsible parties

In accordance with Article 55.1 of the directive on electricity system balancing, the plus or minus sign in front of the imbalance of a given balance responsible party determines whether the tariff for maintaining and restoring the residual balance of the individual access responsible party reflects a purchase tariff or sale tariff. A positive imbalance corresponds to an excessive injection of energy by the balance responsible party. The tariff that applies to this type of situation is a feed-in tariff for surplus energy, which is therefore paid by Elia to the balance responsible party if the residual balance tariff is positive. A negative imbalance, on the other hand, corresponds to an insufficient injection by the balance responsible party. The tariff that applies to this type of situation is a loss-making tariff for the sale of energy, which is therefore paid by the balance responsible party to Elia if the residual balance tariff is positive.

The tariff for maintaining and restoring the residual balance of the individual access responsible party is generally positive. However, it is possible, especially in the event of a downward adjustment, that the tariff will be negative, with the result that reverse payments are made between Elia and the relevant balance responsible parties.

For the period 2020-2023, the tariff for maintaining and restoring the residual balance of the individual access responsible party is calculated according to the following table:

		System Imbalance	
		Positive	Negative or zero
Imbalance of the balance responsible party	Positive	MDP – α	MIP + α
	Negative		

Table 1. Tariffs for maintaining and restoring the residual balance of individual access responsible parties

where:

- MDP = marginal price of downward activation
- MIP = marginal price of upward activation
- α (EUR/MWh) = 0 if si ABS(SI(t)) ≤ 150 MW
- α(t) (EUR/MWh) = $\left(a + \frac{b}{1+\exp\left(\frac{c-x}{d}\right)}\right) * cp$ if ABS(SI(t)) > 150MW

  with the values for parameters a, b, c, d, x:

  a = 0 EUR/MWh
  b = 200 EUR/MWh
  c = 450 MW
  d = 65 MW
  x = Average [(ABS (SI (t)); ABS (SI (t-1))], namely the moving average of the absolute value of the quarter-hour system imbalance qh (t) and qh (t -1)

  The **cp** is determined by the value of MIP and MDP according to:

  - If SI (t) ≤ 0 ;
    - If MIP (t) ≥ 400 €/MWh; 0
    - If 200 €/MWh ≤ MIP (t) < 400 €/MWh; $(400 - MIP(t))/200$
    - If 0 €/MWh ≤ MIP (t) < 200 €/MWh; 1
    - If -200 €/MWh ≤ MIP < 0 €/MWh; $(MIP(t) + 200)/200$
    - If MIP (t) < -200 €/MWh ; 0

- If SI (t) ≥ 0 ;
  - If MDP (t) ≥ 400 €/MWh; 0
  - If 200 €/MWh ≤ MDP(t) < 400 €/MWh; $(400 - MDP\ (t))/\ 200$
  - If 0 €/MWh ≤ MDP(t) < 200 €/MWh; 1
  - If -200 €/MWh ≤ MDP(t) < 0 €/MWh; $(MDP(t) + 200)/\ 200$
  - If MDP(t) < -200 €/MWh ; 0

- System imbalance = ACE – NRV
- NCV = Net Control Volume
- ACE = Area Control Error
- ABS (SI (t)) = the absolute value of the quarter-hour system imbalance qh (t)
- ABS (SI (t-1)) = the absolute value of the quarter-hour system imbalance qh (t-1)

To provide effective incentives for the balance responsible parties in specific situations, in particular when the size of the imbalance in the control area approaches or exceeds available reserves[7] (incompressibility) or in the event of supply problems, special rules may apply for determining the value of the tariff for maintaining and restoring the residual balance of individual access responsible parties. These rules will be described in:

- the functioning rules of the strategic reserve, more specifically in the event of:
  - activation of the strategic reserves, as stipulated in points 4.2 and 4.6 of Annex 2 to the Tariff Methodology;
  - pursuant to Article 7 *septies §*2 of the Electricity Act;
- the functioning rules governing the operation of the market with respect to compensation for quarter-hourly imbalances (e.g. in the event of insufficient compressibility).

If necessary, relevant additional rules proposed by Elia and approved by the CREG will also be taken into account.

⇨ Setting the α parameter

The α-parameter offers an additional incentive that is applicable in the event of a structural imbalance in the Belgian control area, both for balance responsible parties with an imbalance in the same direction as the overall imbalance of the Belgian control area, and for balance responsible parties with an imbalance in the opposite direction as the overall imbalance of the Belgian control area.

An adjustment to the α parameter during the regulatory period does not constitute a change to the tariff mechanism.

[7] For example, in the event of the need to activate backup contracts concluded with neighbouring system operators in export mode.

Annex 2: Assessment of the Alpha parameter and proposal for re-calibration

See consultation page