

ELIA TRANSMISSION BELGIUM

RULES FOR THE COMPENSATION OF THE QUARTER-HOURLY IMBALANCES.

**(Hereafter also referred to as the “Balancing
Rules”)**

Date of submission for regulatory approval: xx/xx/2020

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

Whereas:

- 1. Article 200 §1 of the Royal Decree with respect to a grid code for the management of the transmission grid of electricity and the access to this grid of 22 April 2019 (hereafter referred to as “**Federal Grid Code**”) requires Elia Transmission Belgium S.A./N.V., (hereafter referred to as “**Elia**”) to develop a set of market rules for the compensation of the quarter-hourly imbalances (hereafter referred to as “the **Balancing Rules**”).*
- 2. The reserve capacity for FCR to be procured by Elia is determined by all Transmission System Operators (hereafter referred to as “**TSOs**”) of the synchronous area in application of the provisions of article 153 of the Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as “**SOGL**”) and specified in the Synchronous Area Operational Agreement (hereafter referred to as “**SAOA**”).*
- 3. The LFC block operational agreement (hereafter referred to as “**LFC BOA**”) referred to in article 119 of SOGL specifies the dimensioning rules for Frequency Restoration Reserves or “**FRR**” (being the total of aFRR and mFRR) and the methods to fulfil the obligations of load-frequency control in execution of article 228 of the Federal Grid Code.*
- 4. Pursuant to article 228 §3 of the Federal Grid Code Elia establishes and submits for approval to the CREG a proposal regarding the methodology for determining the volumes of balancing capacity for aFRR and mFRR for the Elia LFC Block (hereafter referred to as the “**LFC Means**”). The determination of the volumes of balancing capacity takes into account the volume of reserve sharing and non-contracted balancing energy bids.*
- 5. Elia is granted an exemption formulated in accordance with article 32(3) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (hereafter referred to as “**EBGL**”) for the obligation to purchase separately upward and downward balancing capacity for aFRR that has been approved by the CREG in the decision (B)1879 of 18 December 2018. The exemption has been granted until 15 December 2021.*
- 6. Article 145(4) of SOGL describes the automatic frequency restoration process according to which aFRR is activated in the Elia LFC Block.*
- 7. Article 226 of the Federal Grid Code determines the available active power for upward and downward regulation that must be put at the disposal of Elia on generation units and asynchronous storage parks of types C or D (in accordance with article 35 §2 and §4 of the Federal Grid Code) whose nominal power is higher than or equal to 25MW. Article 226 of the Federal Grid Code also defines voluntary participation in balancing*

- services from other generation units and storage parks as well as from consumer units.*
- 8. Articles 12 to 12quinquies of the law of 29 April 1999 concerning the organization of the electricity market (hereafter referred to as the “**Electricity Law**”) provide the principles to which the tariff proposal shall comply.*
 - 9. The tariff for maintaining and restoring the individual balance of the Balance Responsible Party (“**BRP**”) is included in the tariff proposal, in accordance with articles 12 to 12quinquies of the Electricity Law.*
 - 10. The impact of the activation of the balancing reserves on the balancing perimeter(s) of the BRPs concerned is described in the BRP Contract.*
 - 11. Article 17 of the Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets (hereafter referred to as “**Transparency Regulation**”) requires each TSO to provide information to ENTSO-e relating to balancing of the TSO’s LFC Block.*
 - 12. Article 12 of EBGL requires each TSO to publish information relating to balancing at least through the information transparency platform of ENTSO-e.*
 - 13. Article 227 of the Federal Grid Code determines that Elia has to monitor the availability of balancing services in the LFC Block according to article 163 of SOGL.*
 - 14. The operating rules of the strategic reserve (hereafter referred to as “**SR Rules**”) established according to article 7septies of the Electricity Law are taken into account when relevant.*
 - 15. Should differences and/or contradictions exist between the Balancing Rules and any of the European and/or regional regulatory methodologies coming from EBGL and Transparency Regulation, the later shall prevail.*

SUBMITS THE FOLLOWING FOR APPROVAL TO THE CREG:

TITLE 1 General Provisions

Article 1. Subject matter and scope

1. In accordance with article 200 §2 of the Federal Grid Code, the underlying Balancing Rules contain the following:
 - a. The list of balancing resources available to the TSO and the detailed modalities according to which the TSO uses them to ensure the balance of the LFC Block, as respectively described in TITLE 2 and TITLE 3.
 - b. The potential impact that the use of balancing resources may have on the components of the tariffs applicable to BRPs in accordance to the tariffs established in line with articles 12 to 12quinquies of the Electricity Law, as described in TITLE 4;
 - c. The modalities for the timely publication of the relevant information for the balancing of the LFC Block, as described in TITLE 5;
 - d. The modalities for monitoring the operation of the balancing market and the creation of the related reports for the CREG, as described in TITLE 6.
2. Only the use of the balancing resources in the context of the balancing of the Elia LFC Block is described in the Balancing Rules. The use of such resources in the context of congestion management is not part of the Balancing Rules.

Article 2. Publication and implementation of the Balancing Rules

1. The Balancing Rules will enter into force, after their approval by the CREG, on the day of the entry into force of the first versions of the Terms and Conditions for the balancing service provider for Frequency Containment Reserve (hereafter referred to as “**T&C BSP FCR**”) and the Terms and Conditions for the balancing service provider for automatic Frequency Restoration Reserve (hereafter referred to as “**T&C BSP aFRR**”).
2. The Balancing Rules will enter into force for an undetermined duration.
3. In accordance with article 200 §1 of the Federal Grid Code, Elia will publish the Balancing Rules after approval by the CREG.
4. Pursuant to article 200 §1 of the Federal Grid Code, all future evolutions of the Balancing Rules will be publicly consulted and the consequent proposal will be submitted to the CREG for approval.

Article 3. Definitions and interpretations

1. Except where there is further specification aimed at application for the purposes of the Balancing rules, and without ignoring the stipulations of public order, the concepts defined in the Electricity Act, the electricity decrees and/or ordinances in relation to the

organization of the electricity market and/or the various applicable Grid Codes and EU network codes and guidelines, as amended from time to time, are also included for the purposes of the Balancing Rules in the sense of these statutory or regulatory definitions.

2. In the Balancing Rules, unless the context requires otherwise:

- the singular indicates the plural and vice versa;
- references to one gender include all other genders;
- the table of contents, titles and headings are for convenience only and do not affect their interpretation;
- the word “including” and its variations are to be construed without limitation;
- any reference to legislation, regulations, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force.

3. For the purposes of these Balancing Rules, the following definitions shall also apply:

(1)	ACER	EU Agency for the Cooperation of Energy Regulators;
(2)	aFRR Requested	As defined in article II.1 of the T&C BSP aFRR;
(3)	Area Control Error or "ACE"	As defined in article 3(19) of SOGL. For Elia's LFC Block, the ACE is equal to the FRCE;
(4)	Automatic Frequency Restoration Reserve or "aFRR"	As defined in article 3(99) of SOGL;
(5)	Balancing Services	As defined in article 2(3) of EBGL;
(6)	Balance Responsible Party or "BRP"	As defined in article 2(7) of EBGL and listed in the register of Balance Responsible Parties;
(7)	BRP Contract	The contract concluded between Elia and the BRP pursuant to articles 219 and 220 of the Federal Grid Code;
(8)	CIPU Contract or "CIPU"	The contract for the "Coordination of Injection of Production Units" concluded with Elia, or any other regulated contract(s) that will replace the CIPU Contract, in accordance with the dispositions in article 377 of the Federal Grid Code;

(9)	Capacity Contracting Time Unit Or “CCTU”	As defined in article II.1 of the T&C BSP FCR, article II.1 of the T&C BSP aFRR and article II.1 of T&C BSP mFRR;
(10)	CREG	The federal regulatory authority of gas and electricity markets in Belgium;
(11)	Delivery Points DP _{PG}	As defined in article II.1 of the T&C BSP FCR, article II.1 of the T&C BSP aFRR and article II.1 of T&C BSP mFRR;
(12)	Electricity Act	The Belgian law of 29 April 1999 concerning the organisation of the electricity market (“Loi du 29 avril 1999 relative a l'organisation du marché de l'électricité, M.B. 11.05.1999” / “Wet van 29 april 1999 betreffende de organisatie van de elektriciteitsmarkt, B.S. 11.05.1999”), as amended from time to time;
(13)	Energy Bid	A combination of a volume (in MW) and a price (in €/MWh), submitted to Elia for activation;
(14)	ENTSO-e	European Network of Transmission System Operators for Electricity;
(15)	Federal Grid Code	The provisions of the Royal Decree of 22 April 2019, as amended from time to time, establishing a federal technical regulation for the management of and access to the transmission grid;
(16)	Frequency Containment Reserve or “FCR”	As defined in article 3(6) of SOGL;
(17)	Imbalance Netting	As defined in article 2(40) of EBGL;
(18)	Imbalance Price	As defined in article 2(12) of EBGL;
(19)	LFC BOA	LFC block operational agreement of Elia, in accordance with article 119 of SOGL;
(20)	LFC Means	A document, approved by the CREG, describing the methodology to determine the volumes of balancing capacity for aFRR and mFRR for the Elia LFC Block, pursuant to article 228 §3 of the Federal Grid Code;
(20)	Load Frequency	As defined in article 3(18) of SOGL;

	Control Block or "LFC Block"	
(21)	Manual Frequency Restoration Reserve or "mFRR"	Frequency Restoration Reserve (FRR), as defined in article 3(7) of SOGL, that can be activated manually;
(22)	mFRR Flex	The mFRR balancing capacity product characterized by a limited activation time and a neutralization time between two successive activations, as specified in the T&C BSP mFRR;
(23)	mFRR Standard	The mFRR balancing capacity product characterized by an unlimited activation time and no neutralization time, as specified in the T&C BSP mFRR;
(24)	Reserve Type	Is a type of active power reserve, as defined in article 3(16) of SOGL and included in the list of balancing resources in Article 4;
(25)	System Imbalance	Is equal to the Area Control Error minus the Net Regulation Volume, as defined in Article 16(1);
(26)	Technical Unit	A facility connected within the LFC Block of Elia;
(27)	Terms and Conditions for the Balancing Service Provider or "T&C BSP"	The terms and conditions for balancing service providers in accordance with article 18 of EBGL;
(28)	Unit with Technical Limitations	A Technical Unit subject article 226 §1 of the Federal Grid Code that cannot be activated via the FRR processes.
(29)	Peak Hour	The hours between 8h00 and 20h00 on weekdays (from Monday until Friday, bank holidays included).
(30)	Off Peak Hour	The hours between 20h00 and 8h00 (all days of the week) and the hours between 08h00 and 20h00 on Saturday and Sunday.
(31)	Delta_P _{R2}	The setpoint for the regulation, sent by Elia to the BSPs of the aFRR control for the steering of the aFRR control power.

TITLE 2 Balancing resources

Article 4. List of balancing resources

1. The balancing resources available to Elia to ensure the balance of the Elia LFC Block are:
 - i. Frequency Containment Reserve;
 - ii. Imbalance Netting and automatic Frequency Restoration Reserve;
 - iii. Manual Frequency Restoration Reserve, including mFRR sharing agreements between TSOs.

Article 5. FCR

1. The terms and conditions relating to FCR products are described in the T&C BSP FCR.
2. According to article 163 §2 and annex VI of SOGL, all TSOs involved in the exchange of FCR within a synchronous area shall ensure that at least 30% of their total combined initial FCR obligations is physically provided inside their LFC Block, meaning that at maximum 70% of its initial FCR obligations can be physically provided outside the Elia LFC Block and taking into account this constraint set by SOGL, Elia participates in the Regelleistung Service for the FCR procurement.

Article 6. aFRR and Imbalance Netting

- ~~1. The terms and conditions relating to aFRR products are described in the T&C BSP aFRR.~~
3. General conditions relating to participation in the control of the balance of Elia's LFC Block
From 1 November 2017, delivery points subject to a strategic reserve contract cannot participate in the supply of aFRR (contracted and non-contracted) control capacity as described in the text below from the beginning of the strategic reserve contract until 31 October following the end of the same contract. These conditions apply to all delivery points.
4. Reservation of aFRR control power
 - i. Procedure for aFRR capacity tender
The aFRR reserves are fully covered by short-term products.
 - ii. Conditions relating to the capacity bids
aFRR control power is one of the essential means of ensuring the regulation of the balance of Elia's LFC block. Consequently, the rules used to reserve aFRR control power must be set up in such a way as to enable as many potential BSPs as possible to participate at the aFRR services.
Therefore, potential BSPs have the possibility to make capacity bids for the reservation of aFRR control power.

Potential BSPs may submit multiple capacity bids, divisible or not, separately for up and down and separately for Peak and Off Peak hours. The volume of the capacity bids must be expressed as a integer number in MW.

capacity bids may also be linked to 'selection conditions'. These make it possible to link certain capacity bids.

The price of the capacity bids is expressed in €/MW/h, without a specific price per unit.

iii. Selection the capacity bids

The short term selection aims to ensure that the total volume for the relevant period for which Elia contracts covers at least the volume proposed by ELIA and approved by CREG at the lowest possible total price, and respecting the conditions relating to the capacity bids of a BSP.

The reservation of aFRR control power with a given BSP implies for that BSP an "obligation to bid": on day D-1, the BSP must make available to Elia the reserved volumes for the concerned period per quarter-hour for the following day, according to the conditions described in §6.

The BSP has the possibility to carry out a "transfer of obligation to bid" to another BSP via the secondary market described in §5. The BSP has an obligation to bid for the reserved volume on his assets for the regulation¹, reduced/increased by the volume transferred to/from another BSP.

iv. Remuneration of the capacity bids

Without prejudice to article 12quinquies of the Electricity Law of 29 April 1999 on the organisation of the electricity market, the remuneration system for the reservation of aFRR capacity is a 'pay as bid' system (as opposed to a 'pay as cleared' system).

The contractual conditions are described in the 'contract for secondary control'.

v. Control and penalty

The information relating to the offered volumes shall be verified based on the daily access programme, the technical characteristics and information on the status of the production units transmitted in the framework of the implementation of the Coordination of Production Units Contract, as well as on the basis of the reserve volumes offered in the framework of bids for other Balancing Services.

This makes it possible to check whether the reserved volumes have actually been made available to Elia in day-ahead.

¹ The reserved volume can be zero.

The verification is carried out on a monthly basis by comparing on a quarter-hourly basis the actual availabilities, calculated on the basis of the bids announced in D-1 in accordance with the modalities described in §6 with the contractually agreed availabilities, taking into account the transfers of obligations (if any) as described in §5.

The purpose of the checks is to verify whether the volume made available per quarter-hour by a BSP is larger than or equal to the volume for which he has an obligation to bid.

If this is not the case, a penalty is applied for each missing quarter-hour and each missing MW calculated by Elia. This penalty varies on a linear basis depending on the clean spark spread of a "type" production unit (CCGT with an efficiency of 50%) for the concerned hour, and is subject to a minimum.

- The penalty should be sufficiently high compared to the cost of replacing the missing reserves on the secondary market for the concerned period, i.e. a cost that fluctuates on an hourly basis. This penalty is therefore identical for all BSPs (for a missing MW in a given hour) and independent of the contractual price of the reservation.
- The total amount of penalties that can be imposed on a given BSP is subject to an upper limit over the contractual period, which ensures that the total cost of the penalties does not exceed the total revenue of the contractual period.

As a consequence of the possibility for producers, in the context of Intraday Production, to modify the daily access programmes of their production units up to 45 minutes before the start of the quarter-hour for supply, and Elia's concern to ensure better monitoring of the reserves in real time, Elia has set up a system for monitoring the global reserve of the control area in real time. If necessary, Elia can obtain the necessary reserve from producers (via ad hoc actions such as the start-up of slow units or the refusal of programme changes) as stipulated in the Federal Grid Code.

5. Operation of the secondary market for aFRR

- i. A BSP providing the aFRR services who has reserved control power via CIPU Technical Units, may transfer its obligation to another BSP, subject to the latter's agreement, for part or all of the volume and/or concerned period. The latter takes over the obligation from the first BSP by using (a combination of) CIPU technical unit(s) of its choice, provided that the new obligations are limited to the pre-qualified capacities of the new BSP for the concerned product(s).
- ii. Transfers of obligation may take place in day-ahead and intraday and must be notified to Elia specifying the volumes and exact quarter-hours to which the transfer applies.

iii. For day-ahead transfers, Elia checks in particular the consistency between the two BSPs' notifications before accepting the transfer of obligation. The day-ahead procedure (notification, review and validation) is as follows:

- All transfers of obligation must be submitted before a first gate is closed (13h30).
- Elia verifies the consistency of the transfers and accepts them if necessary. Elia communicates the results of its verifications to the BSPs.
- The BSPs whose transfers of obligations have not been accepted may submit adjusted transfers before the closing of a second gate (14h00).
- In accordance with the procedures applicable in day-ahead, the BSPs submit to Elia the nominations for the activation aFRR control power (via CIPU units) for a volume equal to the initial contracted obligations plus / minus the transferred capacity.

iv. The final results will be communicated after this second gate and before the closing of the nominations D-1 for day D.

v. The intraday procedure can be used as soon as Elia has validated the day-ahead nominations of the CIPU technical units. The exchange of obligation via this procedure ends at the latest the next day at midnight (on D). The intraday procedure is as follows:

- The BSP that transfers the obligation submits the notification; the BSP who takes over the obligation must approve the notification within a certain time frame (1 hour) before the start of the delivery period.
- Elia verifies that the transfer of the obligation does not pose a risk to grid security before accepting it. Elia may refuse the transfer of the obligation if it would cause congestion problems.

vi. There is no intraday nomination procedure for the activation of aFRR control power on CIPU technical units. Nominations submitted in day-ahead are automatically adjusted for these units on the basis of information (including the name of the CIPU technical unit) obtained at the time of notification of the transfer of the reserve obligation. The impact on the activation price of the secondary regulatory capital provided by CIPU technical units is detailed in the note "Study on the extension of the secondary market for reserve" published on website of Elia².

6. Conditions relating to Energy Bids

i. Any BSP with whom Elia reserves aFRR control power (or who has undertaken to offer a bid in place of another BSP in accordance with the provisions described in

² consult the document via <https://www.elia.be/nl/elektriciteitsmarkt-en-systeem/document-library>

- §5) must offer on day D-1 for the next day at least the quantity for which it has an obligation.
- ii. This means that the BSP is free to offer more than the minimum to which he has committed.
 - iii. The BSP who have no obligation to offer may also on a voluntarily basis offer aFRR control power on day D-1 for the following day, if they meet the technical conditions imposed for participation at the aFRR service. This is ensured by the prior signature of a “secondary control contract” with a reserved capacity equal to 0 MW.
 - iv. All BSPs must announce the list of units that will be able to participate in aFRR on day D-1. As a result, the bid prices for the upward and/or downward direction depend on each of the units that the producer on day D-1 announces to be available to participate in the upward and/or downward direction. The bids cannot be changed in intraday (after the selection in D-1 as described in Article 9) according to a procedure similar to that applied in day-ahead. For this purpose, the BSP must use the secondary market for reserve (described in section §5) in intraday.
 - v. The Energy Bids must meet the following criteria:
 - each bid must related to a quarter-hour and to a unit;
 - each bid shall include a volume and a price for the activation of power in the upward direction and/or a volume and a price for the activation in the downward direction;
 - each bid volume is a multiple of 0,1 MW and is larger than or equal to 1 MW;
 - the bid price for the activation of control power in the upward direction ('price for upward regulation) and the bid price for the activation of control power in the downward direction ('price for downward regulation') shall have a positive sign or zero. A price for the upward regulation means, in case of activation by Elia, a compensation from Elia to the BSP who has offered the bid. An price for downward regulation means, in case of activation by Elia, a compensation to Elia from the BSP who has offered the bid;
 - each bid may, at Elia's request, be partially activated in time and volume;
 - the sum of all bids of a BSP represents, per quarter-hour of the concerned day, taking into account any transfers of obligations to/from other BSPs, at least the reserved volume.
 - vi. The prices of the bids for aFRR activation are subject to the restrictions described below:

- a price restriction for aFRR Energy Bids for activation in the upward direction via an absolute "Cap" valid for all types of units. This Cap is 40 €/MWh above the reference production cost (generic Fuel Cost "FCgen") as the fuel cost of a "type" unit. The type unit is determined as a CCGT unit with an efficiency of 50%.

The generic Fuel Cost is the fuel cost of a "type-unit" (defined as a CCGT with an efficiency of 50%). The fuel cost of a unit (FC) is determined based on the specific consumption of the concerned type of production-unit and of the expected market price of the fuel consumed by this unit. It is determined as followed:

$$FC_{gen} = FC_{CCGT-50\%} = NG \text{ [€/GJ]} * S_{CCGT-50\%} \text{ [GJ/MWh]}$$

with

- $S_{CCGT-50\%}$ = the specific consumption of a type-unit, expressed in [GJ_t/MWh_e]. For a CCGT-unit with an efficiency of 50% is $S = 7,2^3$ [GJ_t/MWh_e]
 - NG is the price of natural gas, existing of the index HEREN ICIS ESGM day-ahead index » & "HEREN ICIS ESGM Weekend index", which is published on a daily basis, increased by the fixed cost price for the transport of gas in €/GJ as defined in the CIPU contract.
- A limitation of the prices for the aFRR Energy Bids for the activation in the downward direction by a "Floor" equal to 0 €/MWh.

Consequently,

Prices of the bids $OBS_{k,i,j} \leq FC_{gen} + \text{€ } 40\text{€/MWh}$

Prices of the bids $ABS_{k,i,j} \geq \text{€ } 0\text{€/MWh}$

With

- $OBS_{k,i,j}$: bid number (k) for an activation of aFRR power in the upward direction by BSP (i) for quarter-hour (j);
- $ABS_{k,i,j}$: bid number (k) for an activation of aFRR power in the downward direction by BSP (i) for quarter-hour (j);

In the event of non-availability of the bidding system, the prices of the bids for upward or downward regulation in the framework of the aFRR services shall be considered as back-up thanks to the following formulae:

³ $S = \text{specific consumption of a production unit, expressed in GJ}_t\text{/MWh}_e$
 $= 3,6 \text{ [GJ}_t\text{/MWh}_e] * 1/\text{efficiency}[\text{MWh}_e\text{/MWh}_t]$

Prices of the bid $OBS_{k,i,j} = \max(0; \min(\text{reference price of the Belgian day-ahead market} + 5\text{€/MWh}; FC_{\text{gen}} + 40\text{€/MWh}))$

Prices of the bid $ABS_{k,i,j} = \max(\text{reference price of the Belgian day-ahead market} - 5\text{€/MWh}; 0)$

- vii. Taking into account their interaction with the formation of the price for the reservation of the power, these price limits for bids - and formulas in case of unavailability of the system - are announced within the framework of the public short-term tender for the reservation of aFRR control power.

7. Remuneration of aFRR Energy Bids

- i. Although the actual activation price may be higher for the BSP (e.g. specific reasons requiring units other than those initially foreseen have to provide the service), the remuneration of a BSP of aFRR remains equal to the average weighted price of the bids selected on day D-1.
- ii. The settlement of the assets activated for the aFRR services is based on the "pay as bid" principle. In other words, the activated volume (corresponding to the signal sent to a BSP, integrated on a quarter-hourly basis) is remunerated at the prices of the Energy Bids submitted by this BSP.

$$VAOS_{i,j} = VOS_{i,j} - VAS_{i,j}$$

Including

$$VOS_{i,j} = \int_{qh=j} \Delta P_{O,i,j} dt * POS_{i,j}$$

And

$$VAS_{i,j} = \int_{qh=j} \Delta P_{A,i,j} dt * PAS_{i,j}$$

With

- $VOS_{i,j}$: value of the energy for upward aFRR regulation activated by the BSP i during quarter-hour j, expressed in €;
- $VAS_{i,j}$: value of the energy for downward aFRR regulation activated by the BSP i during quarter-hour j, expressed in €;
- $POS_{i,j}$: price of the aFRR control power activated for upward regulation during quarter-hour j at the BSP i, expressed in €/MWh. This price is equal to the average weighted price of the selected bids for upward regulation of the BSP i during quarter-hour j;
- $PAS_{i,j}$: price of the aFRR control power activated for downward regulation during quarter-hour j at the BSP i, expressed in €/MWh. This price is equal

to the average weighted price of the selected bids for downward regulation of the BSP i during quarter-hour j;

- $\int_{qh=j} \text{delta_}P_{R2O,i,j} dt$: The integral of the positive part of the signal $\text{delta_}P_{R2}$ sent to BSP i for quarter-hour j, expressed in MWh.
- $\int_{qh=j} \text{delta_}P_{R2A,i,j} dt$: The integral of the negative part of the signal $\text{delta_}P_{R2}$ sent to BSP i for quarter-hour j, expressed in MWh.

Since, as described earlier, the prices of the Energy Bids are always positive, the sign for the integrated signal $\text{delta_}P_{R2}$ is decisive for the result. This is how one arrives at:

- a payment by Elia to BSP i of $\text{VOS}_{i,j}$ for the activation of the aFRR upward regulation by BSP i, during quarter-hour j;
- a payment by BSP i to Elia of $\text{VAS}_{i,j}$ for the activation of the aFRR downward regulation by BSP i, during quarter-hour j;

$\text{VAOS}_{i,j}$ is only used in the framework of the remuneration of the BSP i. Control and penalties

iii. The activation is checked, per selected BSP, by comparing the following elements:

$$\left(\sum P_{\text{gemeten}(1)} - \sum P_{\text{ref}(1)} \right) \langle \rangle \text{delta_}P$$

for all units currently participating in the aFRR services

The Pref signal, which represents the reference situation of each unit participating in the aFRR service, must be sent to Elia for each of the concerned units.

iv. This control is done ex post, on a continuous basis, in other words, by applying the above formula for each quarter-hour of the contractual period. Penalties apply in case of non-compliant activation. These penalties are proportional to a fixed factor and to the absolute value of the deviation between the required and delivered control power. The cap on penalties for the contractual period described in §4.iv applies.

2. Elia activates contracted and non-contracted aFRR in accordance with Article 12.

3. Imbalance Netting

- i. The article 146(1) of SOGL states that the control target of Imbalance Netting process shall aim at reducing the amount of simultaneous counteracting FRR activations of the different participating LFC areas by Imbalance Netting power interchange.

- ii. Pursuant to article 22(3) of EBGL, the Imbalance Netting implementation framework⁴ includes the minimum content for the European platform for the Imbalance Netting process.
 - iii. Article 22(5) of EBGL requires TSOs to operate the Imbalance Netting process by 1 year after approval of the Imbalance Netting implementation framework.
 - iv. Elia plans to implement the Imbalance Netting process pursuant article 22(5) of EBGL in line with the implementation plan after approval by ACER of the Imbalance Netting implementation framework.
 - v. Until the full implementation of the Imbalance Netting implementation framework, it is to be noted that Elia, as operational member of the IGCC⁵, is already performing an Imbalance Netting process⁶.
4. The impact on the imbalance price of activations of contracted or non-contracted aFRR or Imbalance Netting is described in TITLE 4.

Article 7. mFRR

1. The terms and conditions relating to mFRR products are described in the T&C BSP mFRR.
2. Elia may conclude contracts with neighbouring TSOs for the exchange of energy for the regulation of the Elia LFC Block in both the upward and downward direction.
 - i. The availability of mFRR in the form of these contracts is done on a bilateral, symmetrical and voluntary basis between Elia and neighbouring TSOs. By means of this framework, Elia facilitates the sharing of reserves. The availability of the corresponding mFRR reserves is neither remunerated nor guaranteed.
 - ii. When Elia activates mFRR Energy Bids on request of a neighbouring TSO, the mFRR Energy Bids are settled according to the modalities described in the T&C BSP mFRR.
 - iii. The price and settlement process between the concerned TSOs of the activated energy in the context of the mFRR sharing agreements are agreed bilaterally between Elia and the relevant TSO.
3. Elia activates contracted and non-contracted mFRR and the mFRR available through sharing agreements in accordance with Article 13.
4. The impact on the imbalance price of activations of contracted or non-contracted mFRR or the activation of mFRR sharing agreements on the request of Elia is described in TITLE 4.

⁴ The Imbalance Netting implementation framework has been submitted to ACER for approval. ACER decision is expected in June 2020.

⁵ The International Grid Control Cooperation (IGCC) is the implementation project chosen by ENTSO-E's Market Committee in February 2016 to become the future European Platform for the imbalance netting process (IN-Platform) as defined by article 22 of EBGL.

⁶ published on the ENTSO-E website (https://www.entsoe.eu/network_codes/eb/imbalance-netting/)

Article 8. Additional resources in exceptional circumstances

1. In exceptional circumstances and in compliance with Article 14, Elia may use additional resources as described in §2 and §3.
2. Units with Technical Limitations
 1. In accordance with article 7(2) of the LFC BOA Elia may, under exceptional circumstances, activate reserve providing units or reserve providing groups that cannot be activated via the FRR processes (hereafter referred to as “**Units with Technical Limitations**”), via a separate measure as described in Article 14(1).
 2. Elia makes use of the Units with Technical Limitations that, in application of article 226 §1 of the Federal Grid Code, put the remaining available active power at the disposal of Elia (being all generation units and asynchronous storage units with a nominal power of 25MW or more, regardless of their responsiveness in accordance with the requirements of the balancing products).
 3. The activation of Units with Technical Limitations for the purpose of balancing is settled via the modalities of the CIPU Contract.

3. Running strategic reserves unit

In case of running strategic reserves unit, i.e. a unit in the phase of an effective delivery as defined in Chapter 7 of the SR Rules, Elia may activate the upward available margin (if any, calculated as the difference between the maximum available power on the unit and the setpoint requested for SGR activation) for balancing purposes before the activation of the load shedding plan in accordance with Article 13(6) and in accordance with the SR Rules.

TITLE 3 The use of the balancing resources to maintain the balance of the Elia LFC Block.

Article 9. Merit order list concept for aFRR Energy Bids

1. On day D-1, after receipt of all bids, Elia selects a required control power per quarter-hour for both upward and downward regulation. The required control power has an "upper limit" equal to the total reserved capacity for the concerned period. This selection is made on the basis of an economic "merit order". The selected power can be composed of both contracted and non-contracted volume.
2. The bids for power in the upward direction are thus ranked from the lowest to the highest price; the selection is made by selecting the best bids in terms of required power value.
3. An identical merit order is introduced for the bids for power in the downward direction, in which bids are ranked from the bid with the highest price (compensation to Elia by the BSP) to the bid with the lowest price.

4. The selection is therefore made on the basis of bids from one or more BSPs offering power for the aFRR services. The selection may also be different for a given quarter-hour for upward regulation and downward regulation.
5. The offered volumes that are not or only partially retained for the activation of the aFRR services are treated as non-contracted Energy bids in the upward/downward direction as described in T&C BSP mFRR.

Article 10. Merit order list concept for mFRR Energy Bids

6. Per quarter-hour the Energy Bids per Reserve Type can be selected for activation based on a merit order list ("MOL") concept per direction in which the Energy Bids are ranked for upward regulation (from lowest to highest activation price) or for downward regulation (from highest to lowest activation price) and following the rules set out in Article 12 for aFRR Energy Bids and in Article 13 for mFRR Energy Bids.

Article 11. Activation of FCR

1. FCR is automatically activated based on the frequency deviation with respect to 50Hz. As a consequence, all BSPs providing FCR are activated simultaneously, and proportionally to the frequency deviation in accordance with the T&C BSP FCR.

Article 12. Selection and activation of aFRR Energy Bids

1. The distribution of the selected bids among the various BSPs in each quarter-hour is determining the steering of the aFRR control power. This steering is done via the control signal, "delta_P_{R2}", which is monitored at the level of Elia's national dispatching. This signal is based on the ACE and is determined by an automatic aFRR controller. It is sent to the selected BSPs every 10 seconds.
2. For a given quarter-hour, the steering signal will be sent in proportion⁷ to the share of each BSP in the selection. This ratio may be different for the power in the upward direction and for the power in the downward direction. The signal will be calculated for each selected BSP and sent globally, for the part in question, i.e. for all production units participating in this service and selected on D-1.
3. The "delta_P_{R2}" signal sent by Elia to a selected BSP relates to all the generation facilities provided by this BSP on day D-1 for aFRR service. However, the BSP is free to reorganise its portfolio and carry out the requested regulation with any unit included in its contract, as far as:
 - the overall volume made available to Elia for aFRR services is equal to the sum of the volumes of the selected bids for D-1 and

⁷ The proportional distribution has the advantage that several production units can be aligned at the same time, which makes it possible to supply the aFRR power more quickly and to eliminate the imbalance more quickly, thus reducing the volume of activated energy and the cost price.

- the total provided response is in accordance with the contractual specifications, and in particular the response speed corresponds to the parallel mobilisation of all bids selected on D-1.
4. Elia has real-time information on the participation in the aFRR services of each unit (measurements and signals exchanged in real time between Elia and the BSP).
 1. Each quarter hour, before the creation of the MOL for the aFRR Energy Bids as described in Article 9, Elia may take into account the risks for grid security and may declare the aFRR Energy Bid(s) unavailable for activation as described in the T&C BSP aFRR. aFRR Energy Bid(s) that are declared as unavailable, are not retained in the MOL.
 2. Each quarter hour, the MOL for the concerned quarter hour and the next 95 quarter hours are sent to the aFRR controller by Elia, which overwrites the MOL of the first 95 quarter hours and add a new MOL for the 96th quarter hour in the aFRR controller.
 3. Before the aFRR activations, the Imbalance Netting process is applied. The aFRR demand of participating LFC areas is reported to the Imbalance Netting operation system, which returns a correction signal to the aFRR controllers of each IGCC operational member after each optimisation step. In this sense, the counter-activation of aFRR balancing energy is avoided and therefore the use of aFRR is optimised.
 4. aFRR in the Elia LFC Block is activated pursuant to article 145 (4) of SOGL and in accordance with the following:
 - a. The aFRR controller determines the global control target and selects, according to a merit order activation mechanism based on the MOL as defined in Article 9, each 4 seconds the aFRR Energy Bids that need to be activated and the control target (i.e. the selected volume) per Energy Bid.
 - b. Every 4 seconds, the aFRR controller calculates the volume per Energy Bid to be activated (i.e. the aFRR Requested per bid). This calculation is based on the selected Energy Bids, the control target per Energy Bid, the ramping rate of the selected Energy Bids and the activated volume of the Energy Bids during the previous 4 seconds as described in the T&C BSP aFRR.
 - c. In case the situation described in the paragraphs 4.a and 4.b. cannot be followed due to technical constraints, the following back up procedure consisting of two steps will be used.
 - a. Elia selects those aFRR Energy Bids first available in the MOL (created as described in Article 9) up to the level of the contracted aFRR volume.
 - b. The aFRR controller determines each 4 seconds the activated volume per BSP according to a pro-rata mechanism based on the selected Energy Bids (see previous step). The activated volume per BSP is based on the control target of the BSP, the ramping rate of the Energy Bids and the activated volume of the Energy Bids during the previous 4 seconds.

5. In case Elia is not able to send the MOL in time to the aFRR controller, Elia will activate the aFRR Energy Bids according to the latest available information in the aFRR controller. If no information is available for the concerned quarter-hour, the aFRR controller uses the information of the last quarter-hour that is available (see paragraph 1).
6. In the situation described in §5, Elia will perform an ex-post correction of the selection of the aFRR Energy Bids and the activated volume per aFRR Energy Bid (based on the information submitted by the BSP on the bidding platform) for the settlement process which is described in the T&C BSP aFRR.

Article 13. Selection and activation of mFRR Energy Bids

5. In general, Elia will analyse the need for possible activation of mFRR pursuant article 145(5) of SOGL and depending on the System Imbalance of the Elia LFC Block and the level of activated aFRR of at least the last 10 minutes. Elia may activate mFRR Energy Bids to keep the System Imbalance within an acceptable range and/or to relieve aFRR in case of long-lasting System Imbalances.
6. The need to activate mFRR referred to in §1 is determined by Elia on the basis of the System Imbalance of the Elia LFC Block, taking into account all relevant data such as generation, load forecast errors, renewable energy production forecast errors, variations of cross border energy exchanges for the relevant periods, depending on the situation, and the aFRR volumes that are available for the current and the next quarter-hour.
7. When needed and when available, mFRR is activated in the following order and according to the following rules:
1. Elia activates non-contracted mFRR Energy Bids and mFRR Energy Bids contracted as mFRR Standard according to a techno-economic merit order activation mechanism, meaning based on the economic MOL as defined in Article 9 while also taking into account technical properties of the mFRR Energy Bids as defined in the T&C BSP mFRR.
 2. In case of exhaustion of the mFRR means in point 1, Elia activates mFRR Energy Bids contracted as mFRR Flex according to a techno-economic merit order activation mechanism, meaning based on the economic MOL defined in Article 9 while also taking into account technical properties of the mFRR Energy Bids as defined in the T&C BSP mFRR .
 3. In case of exhaustion of the mFRR means in point 2, Elia activates mFRR sharing agreements.
8. In case of an mFRR Energy Bid related to a CIPU Technical Unit which is not running, the start-up costs of the unit are included in the activation price used to create the MOL for the activations described in §7(1) and §7(2) and this only for the first quarter-hour of activation. In that case, the activation price, expressed in €/MWh, is calculated as follows:
- $$\text{Activation price} = \text{mFRR Bid Price} + ([\text{start-up costs} / \text{Pmax}] * x)$$

With:

- mFRR Bid price: price of the mFRR Energy Bid for upward regulation related to the concerned CIPU Technical Unit, expressed in €/MWh.
- Start-up costs: the costs to start up the CIPU Technical Unit as determined in the T&C BSP mFRR, expressed in €.
- Pmax: the maximum capacity of the CIPU Technical Unit as determined in the CIPU Contract, expressed in MW.
- The factor 'x' is equal to 4 as the concerned CIPU Technical Unit can start up in 15 minutes.

For Delivery Points DP_{PG}, the start-up price is included in the bid price (explicit bidding) and therefore, the calculation of the activation price in case of start-up is not required.

9. Elia may take the following into account for its mFRR activations:
 - a. The impact of the activations on grid security, meaning Elia may declare the mFRR Energy Bid(s) unavailable as described in the T&C BSP mFRR.
 - b. The need to maintain a minimum level of production on certain Technical Units delivering other balancing services or voltage regulation in order to ensure the security and reliability of the system at all times.
10. Each time an available mFRR Energy Bid is not activated in respect of §5-9, Elia sends within 3 weeks a report to the CREG with the description of the concerned mFRR Energy Bids and the justification for the deviation from the rules above .

Article 14. Activation of additional resources in exceptional circumstances

1. If the volumes activated in accordance with Article 12 and Article 13 are not sufficient, Elia may activate Units with Technical Limitations in accordance with article 7⁸ of the LFC BOA and with Article 8(1).
 - a. Elia activates Units with Technical Limitations striving towards techno-economic efficiency, i.e. at the lowest cost taking into account system constraints, and therefore the availability and the technical properties of the concerned units aiming at the lowest cost for activation.
 - b. In the case of activation of a Unit with Technical Limitations that is not running, the activation price, expressed in €/MWh, is calculated as follows:

⁸At the date of entry into force of these Balancing Rules, it is set out in article 7 on “Measures to reduce the FRCE by requiring changes in the active power production or consumption of power generating modules and demand units in accordance with Article 152(16) of SOGL” of the LFC BOA. approved on 6 December 2019 .

$$\text{Activation price} = \text{Bid price} + ([\text{start-up costs} / \text{Pmax}] * x)$$

With:

- Bid price: price of the Energy Bid for regulation in the upward direction via the concerned Unit with Technical Limitations, submitted in the framework of the nomination procedure (with possible intraday updates) as described in the CIPU Contract, expressed in €/MWh.
- Start-up costs: the cost of starting up the concerned Unit with Technical Limitations as determined in the CIPU Contract, expressed in €.
- Pmax: the maximum power of the concerned Unit with Technical Limitations as determined in the CIPU Contract, expressed in MW.
- The factor 'x' is equal to 1 for Units with Technical Limitations that cannot activate the requested power within 15 minutes.

c. In addition, the following rules shall apply:

- I. Any cancellation of an activation of a Unit with Technical Limitations that was not running before the start of the activation period will give rise to a remuneration of the start-up costs, without prejudice to the other conditions mentioned below.
 - II. Start-up costs will not be applied when a bid activation is prolonged.
 - III. Start-up costs are not applied if the Unit with Technical Limitations in question is scheduled to be in operation during one of the quarter-hours of activation, the quarter-hour before or after activation according to the last schedule within the framework of the CIPU Contract.
 - IV. In particular, in case of a Technical Unit with several production units (as defined in the CIPU Contract):
 - I. Start-up costs are not applied if at least one of the production units of the Technical Unit is planned to be in operation during one of the quarter-hours of activation, the quarter-hour before or the quarter-hour after activation according to the last program appointed under the CIPU Contract.
 - II. If different start-up costs are possible for a CIPU Technical Unit depending on the configuration of the chosen CIPU Technical Unit(s), the configuration for which the ratio of start-up costs / Pmax is the lowest is taken into account.
2. If the volumes activated in accordance with Article 12, Article 13 and Article 14(1) are not sufficient, Elia may activate the margin available on running strategic reserve units in accordance with Article 8 (3) and following the techno-economic selection determined for SGR activation in accordance with the SR Rules.

TITLE 4 The impact of the use of the balancing resources on the imbalance tariffs

Article 15. General

1. Imbalance tariffs are determined in accordance with the modalities described in the Balancing Rules and in the tariff proposal and may be modified according to the rules applicable if the strategic reserve is used as described in point 6.7 of the SR Rules.
2. The Marginal Incremental Price and Marginal Decremental Price are used in the formation of the prices for the compensation of the imbalances as described in the tariff proposal.

Article 16. Determination of System Imbalance

1. The System Imbalance, as defined in the tariff proposal, is determined for each quarter-hour and is equal to the Area Control Error (“ACE”) minus the Net Regulation Volume (“NRV”).

$$\text{System Imbalance} = \text{ACE} - \text{NRV}$$

2. Net Regulation Volume:

The Net Regulation Volume during quarter-hour j (NRV_j) is calculated as follows:

$$\text{NRV}_j = \text{GUV}_j + \text{SRV}_j - \text{GDV}_j$$

With

- i. SRV_j : activated volume of the strategic reserve, i.e. the sum of the by Elia activated energy volumes at SR units during quarter-hour j
 - ii. GUV_j : the Gross Upward Volume during quarter-hour j , expressed in MW
 - iii. GDV_j : the Gross Downward Volume during quarter-hour j , expressed in MW
3. Gross Upward Volume

The Gross Upward Volume during quarter-hour j (GUV_j) is the sum of all activations for upward regulation demanded by Elia, expressed in MW during the concerned quarter-hour.

$$\begin{aligned}
 GUV_j = & IMP_{iGCC,j} \\
 & + \sum_{k=activated\ BSPs} \int_{j=q_h} Delta_PR2_{up,act,BSP\ k,j} dt \\
 & + \sum_{k=activated\ bids} \int_{j=q_h} aFRR_Requested_{up,act,bid\ k,j} dt \\
 & + \sum_{k=activated\ bids} \int_{j=q_h} mFRR_{up,act,bid\ k,j} dt \\
 & + \sum_{k=activated\ bids} \int_{j=q_h} Units\ with\ Technical\ Limitation_{up,act,bid\ k,j} dt
 \end{aligned}$$

with

- $IMP_{iGCC,j}$: the volume imported by Elia in the framework of Imbalance Netting, during the quarter-hour j , expressed in MW.
- $\int_{q_h=j} aFRR_Requested_{up,act,bid\ k,j} dt$: the integral of Δ_PR2 the aFRR requested in the upward direction per bid-BSP k , during the quarter-hour j , expressed in MW.
- $\int_{j=q_h} mFRR_{up,act,bid\ k,j} dt$: the integral of the requested volume for mFRR Energy Bid k for activation in the upward direction, activated by Elia during quarter-hour j , including mFRR sharing with other TSOs, expressed in MW.
- $\sum_{k=activated\ bids} \int_{j=q_h} Units\ with\ Technical\ Limitation_{up,act,bid\ k,j} dt$: the integral of the requested volume for Energy Bid k of a Unit with Technical Limitation⁹ for activation in the upward direction⁹, activated by Elia during quarter-hour j , expressed in MW.

4. Gross Downward Volume

The Gross Downward Volume during quarter-hour j (GDV_j) is the sum of all activations for downward regulation demanded by Elia, expressed in MWh during the concerned quarter-hour.

⁹ In the context of the storm management procedure, the volume between 0 MW and P_{min} activated ex-ante on Units with Technical Limitations in the framework the fall-back procedure will not be considered in the set-up of the GUD.

$$\begin{aligned}
 GDV_j &= EXP_{IGCC,j} + \sum_{k=\text{activated BSP } j=q_h} \int \Delta PR2_{down,act,BSP k,j} dt \\
 &+ \sum_{k=\text{activated bids } j=q_h} \int aFRR_{Requested,down,act,bid k,j} dt \\
 &+ \sum_{k=\text{activated bids } j=q_h} \int mFRR_{down,act,bid k,j} dt \\
 &+ \sum_{k=\text{activated bids } j=q_h} \int Units\ with\ Technical\ Limitation_{down,act,bid k,j} dt
 \end{aligned}$$

with

- $EXP_{IGCC,j}$: the volume exported by Elia in the framework of Imbalance Netting, during the quarter-hour j , expressed in MW.
 - $\int_{q_h=j} aFRR_{Requested,down,act,bid k,j}$:
 $\int_{q_h=j} aFRR_{Requested,up,act,bid,k,j} \int_{q_h=j} \Delta PR2_{down,act,BSP k,j}$:
the integral of $\Delta PR2$ the aFRR requested in the downward direction per bid BSP k , during the quarter-hour j , expressed in MW.
 - $\int_{j=q_j} mFRR_{down,act,bid k,j} dt$: the integral of the requested volume for mFRR Energy Bid k for activation in the downward direction, activated by Elia during quarter-hour j including mFRR sharing with other TSOs, expressed in MW.
 - $\sum_{k=\text{activated bids } j=q_h} \int_{j=q_h} Units\ with\ Technical\ Limitation_{down,act,bid k,j} dt$:
the integral of the requested volume for Energy Bid k of a Unit with Technical Limitation for activation in the downward direction, activated by Elia during quarter-hour j , expressed in MW.
5. The Energy Bids activated in the context of congestion management within the Elia LFC Block are not taken into account in Gross Downward Volume and Gross Upward Volume.

Article 17. Determination of the Marginal Incremental Price

1. The Marginal Incremental Price during quarter-hour j (MIP_j) corresponds to the maximum of the respective prices of the different balancing resources for the upward regulation, as described in §2, activated by Elia during quarter j to maintain balance of the LFC Block. These balancing resources may be:
 - a. Energy imports by Imbalance Netting
 - b. aFRR
 - i. Non-contracted upward Energy Bids

- ii. Contracted upward Energy Bids
 - c. mFRR:
 - i. Non-contracted upward Energy Bids
 - ii. Contracted upward Energy bids from "mFRR Standard" and "mFRR Flex"
 - iii. mFRR sharing agreements.
 - d. Units with Technical Limitations
2. The price for the upward regulation of each of these resources shall be determined as follows:
- a. The price of upward regulation for the Imbalance Netting is equal to the price for the upward regulation of aFRR, as described in §2(b).
 - b. The price for aFRR for the upward regulation ~~is equal to:~~
 - assuming the distribution of the aFRR signal proportional to each BSP's share in selection D-1, and assuming the contractual obligation of a ramping rate corresponding to the simultaneous activation of all selected bids with each BSP, the aFRR regulation can be assumed to be provided entirely by a production unit with equivalent output consisting of the sum of the selected bids on D-1. The marginal price for upward regulation for Elia of the activation of this equivalent unit is equal to the weighted by the volumes average price of the bids for upward regulation selected for the aFRR control on D-1.
 - ~~i. The weighted average price of the activated aFRR Energy Bids for the upward regulation.~~
 - ~~ii. The price of the first aFRR Energy Bid in the MOL available for the upward regulation (in accordance with Article 9) in case no aFRR Energy Bids for the upward regulation are activated during this quarter hour.~~
 - c. The price for mFRR for the upward regulation is equal to marginal price of the activated mFRR Energy Bids for the upward regulation.

The price for the upward regulation of the mFRR sharing agreements between TSOs is the agreed price of the exchanged energy as defined in the bilateral contracts with the other TSOs.
 - d. The price for upward regulation for Units with Technical Limitations is equal to the highest activation price, taking into account the start-up cost as described in Article 13(1)b of the upward energy activated on a Unit with Technical Limitations for balancing purposes¹⁰.

¹⁰ In the context of the Storm management procedure, the costs associated to ex-ante starting up a Unit with Technical Limitations (fall-back procedure) will not be considered in the set-up of the price for upward regulation.

3. Energy Bids activated in the framework of congestion management are not included in the calculation of the price for the upward regulation of the balance of the Elia LFC Block and therefore have no direct impact on the formation of the price for the compensation of the quarter-hourly imbalances.
4. The activation of FCR does not impact the Marginal Incremental Price.
5. When Elia activates upward mFRR energy bids on request of a neighbouring TSO, this is not taken into account in the calculation of the Marginal Incremental Price for Belgium.
6. The impact of SGR on the imbalance tariffs is described in §6.7 of the SR rules.

Article 18. Determination of the Marginal Decremental Price

1. The Marginal Decremental Price during quarter-hour j (MDP_j) corresponds to the minimum of the respective prices of the different balancing resources for the downward regulation, as described in §2, activated by Elia during quarter j to maintain balance of the LFC Block. These balancing resources may be:
 - a. Energy exports by Imbalance Netting
 - b. aFRR
 - i. Non-contracted downward Energy Bids
 - ii. Contracted downward Energy Bids
 - c. mFRR:
 - i. Non-contracted downward Energy Bids
 - ii. mFRR sharing agreements.
 - d. Units with Technical Limitations
2. The price for downward regulation of each of these resources shall be determined as follows:
 - a. The price for downward regulation of the Imbalance Netting shall be equal to the price for downward regulation of aFRR as described in §2(b).
 - b. The price for aFRR for downward regulation ~~is equal to:~~

assuming the distribution of the aFRR signal proportional to each BSP's share in selection D-1, and assuming the contractual obligation of a ramping rate corresponding to the simultaneous activation of all selected bids with each BSP, the aFRR regulation can be assumed to be provided entirely by a production unit with equivalent output consisting of the sum of the selected bids on D-1. The marginal price for downward regulation for Elia of the activation of this equivalent unit is equal to the weighted by the volumes average price of the bids for downward regulation selected for the aFRR control on D-1.

- ~~i. The weighted average price of the activated aFRR Energy Bids for downward regulation.~~
 - ~~ii. The price of the first aFRR Energy Bid in the MOL available for the downward regulation (in accordance with Article 9) in case no aFRR Energy Bids for the downward regulation are activated during this quarter-hour.~~
 - c. The price for mFRR for the downward regulation is equal to marginal price of the activated mFRR Energy Bids for the downward regulation.

The price for the downward regulation of the mFRR sharing agreements is the agreed price of the exchanged energy as defined in the bilateral contracts with the other TSOs.
 - d. The price for downward regulation for Units with Technical Limitations is equal to the lowest activation price of the downward energy activated on a Unit with Technical Limitations for balancing purposes.
3. Energy Bids activated in the framework of congestion management are not included in the calculation of the price for the downward regulation of the balance of the Elia LFC Block and therefore have no direct impact on the formation of the price for the compensation of the quarter-hourly imbalances.
 4. The activation of FCR does not impact the Marginal Decremental Price.
 5. When Elia activates downward mFRR energy bids on request of a neighbouring TSO, this is not taken into account in the calculation of the Marginal Decremental Price for Belgium.

Article 19. Rules on the offered price for Energy Bids

1. The ~~T&C BSP aFRR and the~~ T&C BSP mFRR can impose a maximum price for the Energy Bids for activation in the upward direction and/or a minimum price for the Energy Bids for activation in the downward direction.
2. Whenever the price of an Energy Bid for activation in the upward (respectively downward) direction reaches or exceeds 100% of the maximum price (respectively, reaches or is inferior to 100% of the minimum price), Elia sends within three weeks a report to the CREG stating the volume and price of the Energy Bids for activation with respect to a time interval covering at least the period from 12 hours before the (first) quarter-hour of the day on which the maximum price is reached or exceeded (respectively the minimum price or an inferior price is offered) until 12 hours after the (last) quarter-hour for which the maximum price is reached or exceeded (respectively, the minimum price or an inferior price is offered); this report shall also analyse the circumstances which have led the market to offer such prices.

3. Following the sending of such a report to the CREG, or in case of a change of the minimum value of the imbalance tariff upon the activation of the strategic reserve in the case of structural imbalance as defined in the tariff proposal as approved by the CREG, Elia may provide the CREG with a new proposal of ~~the T&C BSP aFRR or~~ T&C BSP mFRR, including an adjustment of the maximum or minimum price for the Energy Bids.

TITLE 5 Publication of information

Article 20. Publication on ENTSO-e Transparency Platform

1. Elia shall publish information via the ENTSO-e Transparency Platform in accordance with article 17 of the Transparency Regulation and article 12 of EBGL.
2. In application of article 12(3) paragraphs (b) and (f) of EBGL, Elia shall publish via the ENTSO-e Transparency Platform the information on individual balancing capacity and energy bids in an anonymised way.

Article 21. Publication on the Elia web site

1. Elia shall publish on its web site information on System Imbalance, imbalance price, balancing capacity and balancing energy similar to the information published on the ENTSO-e Transparency Platform as described in Article 20, with the following added specificities:
 - The publications of Energy Bids for aFRR and mFRR, in both aggregated and individual format, occur starting from day D-1 with hourly updates throughout day D.
 - Elia publishes information of all offered, individual capacity bids and not only the capacity bids that were fully or partially procured.
2. Elia shall publish on its web site information on balancing capacity to be procured in accordance with the LFC Means.
3. In addition to paragraphs 1 and 2, Elia shall publish on its web site the following information:
 - a) Marginal prices of mFRR balancing energy offered ~~per type of reserves~~
 - b) Weighted average prices of aFRR balancing energy offered
 - c) Marginal prices of balancing energy offered by volume level
 - d) Information per minute, published cumulatively within the concerned quarter-hour and if technically feasible with a maximum delay of 2 minutes, concerning:
 - i. Volumes and prices of activated balancing energy per type of reserves
 - ii. The imbalance price

iii. The Net Regulating Volume

Per-minute publications are non-validated values.

TITLE 6 Reporting and Monitoring

Article 22. Capacity bids

1. The monitoring report of daily auction includes in a table format:
 - a. the contracted volumes via the daily regional auction, per BSP for FCR;
 - b. the contracted volumes via the weekly local auction, per BSP and per type of product for aFRR.
 - c. the contracted volumes via the daily local auction, per BSP and per type of product for aFRR and mFRR;
 - d. the average price contracted through the weekly auction in the local auctions per BSP and per product type for aFRR.
 - e. the average price contracted through the daily auction in the local auctions per BSP and per product type for aFRR and mFRR per CCTU;
 - f. the marginal price contracted through the daily auction in the regional auctions per BSP for FCR.
2. Elia also foresees to regularly transmit to the CREG the data detailing the bids for FCR, aFRR and mFRR, according to the procurement period in question.
3. This information is included in a monthly monitoring report of Elia to the CREG.

Article 23. Secondary market

1. The monitoring of the secondary market for balancing capacity relates specifically to the follow-up of the transfer of obligations between BSPs. It is included in the statistical report:
 - a. Number of quarter-hours with transfer of obligations per pair of BSPs and per Reserve Type;
 - b. Volume of obligations transferred per pair of BSPs and per Reserve Type.
2. Elia also foresees transmitting to the CREG the volume of obligations transferred in the secondary market per pair of BSPs and per Reserve Type per quarter-hour.
3. This information is included in a monthly monitoring report of Elia to the CREG.

Article 24. Energy Bids

1. The elements listed below are the subject of indicators and monitoring:
 - a. The availability of aFRR and mFRR.
 - i. The overall availability of the balancing reserves per type of reserve and the extent to which the volumes reserved by Elia were actually available.
 - ii. The monitoring is carried out using a table and graph showing the minimum, maximum and average monthly availability of the power

for upward and downward regulation per type of reserve over the 12 previous months.

- b. The bid price for aFRR and mFRR.
 - i. The evolution of the Energy Bid price by reserve type.
 - ii. The monitoring is carried out using tables and charts showing the maximum, minimum and monthly average Energy Bid prices for each reserve type over 12 previous months.
 - c. Bid concentration for aFRR and mFRR.
 - i. The control power offered by the different BSPs.
 - ii. The monitoring is drawn up on the basis of a table showing the volumes offered (in absolute and relative terms) per BSP over the 12 previous months, all reserves combined. The evolution over these 12 months of the relative volumes offered is shown visually for each BSP by means of a graph.
 - d. Bids from CIPU Technical units not running.
2. This information is included in a monthly monitoring report of Elia to the CREG.

Article 25. IGCC

1. The following indicators regarding the use of IGCC are included in the report towards the CREG:
 - a. Monitoring of the prices at which energy exchanges are settled by IGCC: This is done by means of a table and a graph showing for the 12 previous months the maximum, minimum and monthly average price of IGCC exchanges.
 - b. The quarter-hourly data relating to the volumes exchanged and the prices of the exchanges are also provided to the CREG in the framework of the monthly transmission of the aforementioned quarter-hourly data.
2. This information is included in a monthly monitoring report of Elia to the CREG.

Article 26. Activation

1. The purpose of monitoring the activations is to check the functioning of the balancing mechanism.
2. The elements listed below are the subject of indicators and monitoring:
 - a. Activated volumes for aFRR and mFRR.
 - i. The evolution of the activated volumes for each type of reserve and the volumes exchanged through IGCC by Elia.
 - ii. The evolution of activated/exchanged volumes per type of reserve/for IGCC is monitored over the 12 previous months using a table and a graph showing for each month the total of activated volumes per type of reserve and the total of volumes exchanged via IGCC.
 - b. Activation of bids from CIPU Technical Units not running.
 - c. The net regulation volume

The evolution of the NRV is monitored by means of a graph showing, over the 12 previous months, for each month, the average quarter-hourly power corresponding to this net regulation volume. This graph shows the compensation by Elia of the overall imbalance of the BRPs at the level of the LFC Block.

3. This information is included in a monthly monitoring report of Elia to the CREG.

Article 27. Imbalance prices

1. The components of the imbalance price are part of the monitoring of the functioning of the balancing mechanism as a whole.
2. The components listed below are subject to monitoring through following indicators:

- a. Imbalance prices

This follow-up is carried out in the form of:

- a graph showing the distribution of prices for compensating the negative quarter-hourly imbalances between 1st of January and the end of the month in question;
- a graph showing the distribution of the prices for compensating the positive quarter-hourly imbalances between 1st of January and the end of the month in question;
- a graph and a table showing for the 12 previous months the average, minimum and maximum prices for the compensation of the negative quarter-hourly imbalances;
- a graph and a table showing for the 12 previous months the average, minimum and maximum prices for the compensation of the positive quarter-hourly imbalances.

- b. The relationship between the imbalance prices and the price of the electricity market as well as the evolution of the tariff component α .

This monitoring is carried out over 12 previous months via:

- i. the ratio average imbalance price / average reference market price.
- ii. the tariff component α .

3. This information is included in a monthly monitoring report of Elia to the CREG.

Article 28. Financial monitoring of the balancing mechanism

1. Reporting to the CREG on the costs and revenues of the balancing mechanism takes place within the framework of the financial reports communicated to the CREG in accordance with the applicable provisions, but out of scope of the Balancing Rules.
2. This information is included in a monitoring report of Elia to the CREG.

Article 29. Monitoring of the use of the mechanism by the BRPs

1. The purpose of this type of monitoring is to monitor the behaviour of BRPs, as well as the use they make of the balancing mechanism.

2. In the context of this monitoring, the individual behaviour of the BRP is the subject of a follow-up.
3. A visualisation of the monthly behaviour of each BRP as well as a comparison of the behaviour of all the BRPs during the month is carried out on the basis of a monthly graph showing for each BRP the distribution of its quarter-hourly imbalances as well as the distribution of the sum of the imbalances of all BRPs. In order to follow the evolution of this behaviour over time, the quarterly report includes three such graphs, one for each month.
4. These comparative graphs are drawn up on the basis of the absolute imbalance of each BRP and on the basis of the reported imbalance of each BRP based on his allocated off-take (or its imbalance relative to its allocated off-take). The latter representation makes it possible to compare the synchronous imbalances of different BRPs, irrespective of their size.
5. This information is included in a quarterly monitoring report of Elia to the CREG.

TITLE 7 Final Provisions

Article 30. Language

The reference language for these Balancing Rules shall be Dutch. These Balancing Rules are also published in English for information. For the avoidance of doubt, in case of discussion on interpretation, the Dutch version prevails over the English version.