



The balancing mechanism: ensuring the balance of the Elia control area

To ensure the stability of the European interconnected system, the European Network of Transmission System Operators for Electricity (ENTSO E) demands that electricity production and consumption always be balanced. Every high-voltage transmission system operator in ENTSO E is responsible for maintaining balance in its control area. In Belgium, the ARPs are, on an individual basis, responsible for controlling the balance of their perimeter of injections and offtakes.

Elia has established a balancing mechanism in order to ensure the balance of its grid and manage the instantaneous imbalances that the ARPs are not able to control. This mechanism makes use of power reserves supplied by some of the Elia grid users. The costs involved in efficient operation of the balancing mechanism are covered by applying a charge to any possible imbalances of the ARPs. Imbalance tariffing is cost-reflective and constitutes an incentive to ARPs to maintain balance in their balancing perimeter.

For further information about the imbalance tariff or the balancing data provided on the internet, see the sheets "Imbalance tariffs: compensation tariffs as an incentive to maintain balance in their balancing perimeter" and "Electronic publication of balancing data: information for the use of operators".

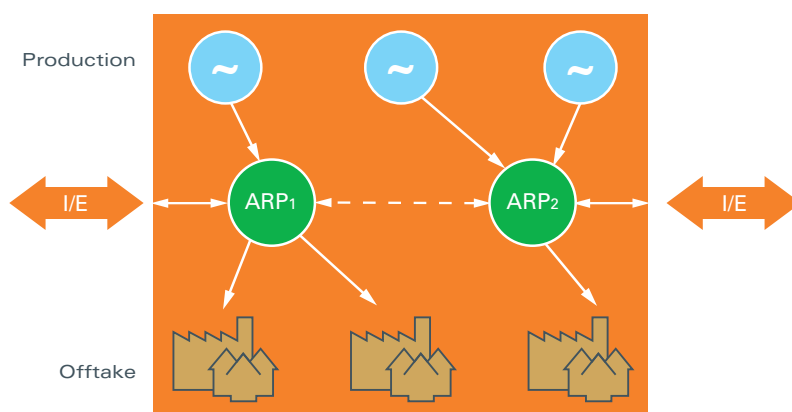
I. Balancing: principles

I.1. Control area and balancing perimeter

As the electricity transmission system operator in Belgium, Elia ensures balance between production and consumption within the control area it has been allocated. The Elia control area covers the whole of Belgium (with the exception of a part of the grid belonging to distribution system operator AIESH) and part of Luxembourg. Elia is supported in this task by ARPs, which are responsible for taking all the measures available to them to maintain balance in their own balancing perimeters. An ARP's perimeter is made up notably of injection and offtake points for which it has been designated access responsible party.

I.2. Rules to ensure the balance of the Elia grid

Rules aiming to ensure the balance of the Elia control area have been drawn up for Elia and for the ARPs. The ARPs manage the balance of their balancing perimeter. An imbalance in one perimeter can lead to a general imbalance across the Elia control area. The federal Grid Code provides a set framework for the Elia control area: the ARPs have to take all reasonable measures to ensure that, on a quarter-hourly basis, electricity injections and offtakes from the access points in their perimeter are always balanced. Elia - again on a quarter-hourly basis - compensates for imbalances to ensure the overall balance of its grid's control area.



 An ARP's balancing perimeter

 Elia control area

 Import/Export

I.3. One balancing perimeter – various types of injections and offtakes

The injections in an ARP's perimeter may be of a number of types:

- injections by production units measured at the access points that are part of the ARP's perimeter;
- injections by production units in the Elia grid, followed by distribution system operators (Elia receives these data from DSOs during an allocation process);
- international imports based on nominations;
- energy exchanges with other ARPs via a Hub nomination (purchases).

There are also various types of offtakes in the ARP's perimeter:

- offtakes measured at the access points that are part of the ARP's perimeter;
- offtakes resulting from Elia control area allocations that have been acquired from other system operators (distribution level);
- international exports based on nominations;
- energy exchanges with other ARPs via a Hub nomination (sales);
- offtake-related losses (for connections at the voltage levels 150 - 380 kV).

I.4. Checking individual balances: a two-phase operation

As the power transmission system operator in Belgium, Elia checks that the perimeters of the ARPs operating in its control area are actually balanced. This operation is made up of two phases:

- an initial check on day D-1 based on the nominations submitted by the ARPs;
- a post-hoc check based on measurement of actual injections and offtakes.

The sum of injections and offtakes nominated by the ARP on day D-1 must be balanced so that Elia can most effectively plan electrical flows on the grid in real time. If they are not balanced, some nominations might be refused by Elia.

The measurements of actual injections and offtakes are used to calculate the value of any imbalance between injections and offtakes. This imbalance is monitored on a quarter-hourly basis. The ARP with an imbalance will be billed only for the imbalance observed on day D.

II. The balancing mechanism: a means for maintaining balance

Elia compensates for imbalances in its control area on a quarter-hourly basis. The balancing mechanism - also known as the "quarter-hourly imbalance compensation mechanism" or "adjustment mechanism" - was set up for this purpose.

II.1. Elia's means of maintaining overall balance

The balancing mechanism enables Elia to maintain balance in its control area and, consequently, meet its duty of solidarity towards the other control areas making up the European interconnected system. Specifically, Elia makes sure that it can call upon power reserves for incremental or decremental activation, allowing it to compensate for any imbalance:

- the secondary reserve: a power reserve that can be activated upwards and downwards quickly and automatically (see the product sheet on the secondary reserve);
- the tertiary contracted production reserve: a power reserve that can only be activated upwards - it is used if there is a major negative imbalance (see the product sheet on the tertiary production reserve);
- the tertiary contracted offtake reserve: a power reserve that can only be activated downwards - it is used if there is a major negative imbalance (see the product sheet on the remuneration for load shedding);
- power that can be activated upwards and downwards, depending on the margin available in the production units and at Elia's request (see the sheet on the CIPU contract);
- inter-TSO assistance, i.e. agreements made with the neighbouring system operators about electricity imports or exports.

II.2. Activation of reserves

If Elia wants to compensate for an imbalance in its control area, it activates the regulation means with which it has been provided. How they are used varies depending on the control area's imbalance status:

- if there is a surplus in the control area, i.e. if the imbalance is the result of excess injected power (a situation known as "positive imbalance"), Elia will activate downward regulation;

- if there is a deficit in the control area, i.e. if the imbalance is the result of insufficient injected power (a situation known as "negative imbalance"), Elia will activate upward regulation.

In accordance with the Grid Code, Elia will activate the regulation means with which it has been provided in the following order:

- first, activation of the automatic secondary regulation;
- second, activation of the uncontracted tertiary regulation (CIPU reserves) on the basis of a technical/economic order of merit;
- third, activation of the contracted tertiary regulation (R3) on the basis of a technical/economic order of merit.

A number of factors will have an impact on the purely economic ranking, e.g.:

- the risk of congestion in the grid, meaning that some offers cannot be activated due to grid safety considerations;
- the limited number of permitted activations of the contracted reserve by interruptible customers;
- the conditional nature of the solidarity between TSOs.

III. Tariffs for maintaining and restoring balance

The mechanism used by Elia to restore balance in its control area entails various costs, for example payments for the suppliers of reserves. These costs are passed on to the ARPs in the form of the imbalance tariff that is applied to imbalances that are found.

III.1. Cost-reflective pricing

The "tariff for balance energy" or "imbalance tariff" is based on the principle of cost-reflective pricing. A set of parameters associated with the volumes and prices of the power activated to restore the balance of Elia's control area means that this charge mirrors the costs actually borne by Elia in compensating for individual imbalances.

III.2. An essential incentive

The imbalance tariffs must act as an incentive for the ARPs to do all they can to maintain balance in their perimeter, for obvious reasons of efficiency: the reserves contracted by Elia are not so large that the ARPs can allow themselves imbalances for economic or operational reasons.

The sheet on the compensation tariff charges describes in detail how these tariffs are calculated. To ensure maximum transparency, Elia has published on its website all the parameters used to calculate these tariffs (see the sheet "Electronic publication of balancing data").

IV. Benefits of balancing

The balancing mechanism is (directly or indirectly) of capital importance to all the players on the Belgian energy market:

- the balance of the Elia high-voltage grid is a key aspect in its stability - this makes the balancing mechanism beneficial to all grid users, as it means that they have a secure and efficient grid in which they can perform their activities in complete security;
- Elia's decision to set up a system of compensation payments for any imbalances and its desire to encourage ARPs to maintain the balance of their perimeter significantly reduces the risks of grid disturbance or even collapse;
- the system of imbalance charges set up by Elia acts as a benchmark for market players that want to conclude similar contracts with other market players.

Elia helps the ARPs to limit the financial risks involved in balance management by offering them the possibility of a pooling agreement signed by two or more ARPs. In other words, those ARPs that so wish come to an arrangement amongst themselves and Elia draws up a bill giving the total of their imbalances. In general, such pooling reduces the amount due in the imbalance bill.

In this connection see the product sheet "The pooling agreement: combining the imbalances of two or more ARPs to reduce their bill".

V. Legal and contractual basis

The balancing mechanism established by Elia is based on multiple provisions in the federal Grid Code.

The balancing mechanism in 5 key points

- The objective of the balancing mechanism is to maintain balance in the Elia control area.
- By maintaining balance in their perimeter, ARPs help Elia to maintain the overall balance of the control area.
- The balancing mechanism provides a transparent and non-discriminatory framework of rules covering the tools used to restore the balance of the Elia control area.
- The mechanism means that a reasonable price is paid to compensate for imbalances in the national control area.
- The balancing mechanism established by Elia is based on the provisions of the federal Grid Code.

