END USER DOCUMENTATION

Publication changes MARI & Picasso on Elia.be, OpenData and B2B XML Services

A document to provide information on changed publications in the balancing domain for MARI & Picasso (Platform for the International Coordination of Automated Restoration and Stable System Operation).

Content

Introduction

Context & purpose of the document

Elia has multiple publications in the balancing domain. With the local/technical go live of MARI some of these publications will be changed and the underlying calculations as well. This document gives more details on the new and changed balancing publications on Elia.be, OpenData & B2B XML Services (or GridData).

MARI Go Live

For the technical go live of MARI test datasets will be provided on OpenData so that implementation of the new APIs is already possible before the go live. Those test datasets will also be kept at go live and will start filling with data the moment of the go live.

Important Remarks

It is important to note that the reference for Imbalance settlement of the BRPs remains the volumes and prices published in the 15 minute publications, for which a validation process occurs. The 1 minute publications aim at providing the stakeholders additional information and are based on non-validated data. The most recent available data are collected and displayed as quickly as technically possible. There is no validation process foreseen for 1 minute publications.

General Principles

Reference for formulas

This document is not a reference for the calculations described. Please refer to the corresponding terms & conditions for the complete calculations. The applicable terms & conditions always prevail.

Some of the formulas related to the calculation of the imbalance prices are still under consideration of the CREG and cannot be considered final.

OpenData principles

Publications on OpenData are as much as possible aligned with Elia.be publications but differences are possible. For the technical go live of MARI the 1 min balancing publications mentioned in this document will be replaced by new publications. Those new publications are already referenced in this document. The current historical datasets will be split in two. The current historical datasets will be pre-MARI datasets and per publication we will have a new historical publication post-MARI

The test datasets can be found here and will have MARI TEST in their title: **https://opendata.elia.be/explore/?refine.theme=MARI%20ICAROS%20TEST%20Datasets**

B2B XML Services (GridData)

Publications done on B2B XML Services will be aligned as much as possible with Elia.be but differences are possible. The new and adjust publications will be provided on GridData as well however it's important to know that **B2B XML Services will be phased out in favor of OpenData**. There is no fixed timing yet for the phase-out, but we strongly recommend you use the APIs provided on OpenData. Not all GridData URLs will change but that doesn't mean the XML/JSON content will not be the same. No test publications will be provided for B2B XML Services like for OpenData, links will only start working as of the technical MARI go live. Important last remark: all URLs with publications.elia.be will no longer receive new data as of the technical MARI go live.

Timing Principles

The following definitions are applied with respect to the timings:

- Calculation Time: Minute to which the respective activated volume or prices corresponds. E.g. Calculation time 00:10 contains activated aFRR volume from 00:00:01 until 00:10:00.
- Imbalance Qh: Imbalance settlement period to which the respective calculation time corresponds.

In order to take into account all relevant information in the published volumes, the volumes and prices related to a certain quarter hour are refreshed after the QH. This allows to increase the level of accuracy of the published volumes. The most recent available data are collected and displayed as quickly as technically possible.

One exception to this rule is the 1 min current system imbalance publications. Values published in this publication only concern the events for the specified minute.

Quality Status

In order to provide information about the validity of the values published in some calculations, a Quality Status is added to the publication. This Quality Status aims at indicating whether an error was logged by the systems at any stage of the calculation, and can have the following values:

- Non-Validated = No single error is registered during the global system calculation run, which is performed every minute.
- Data Issue = At least one error is registered during the global system calculation run, which is performed every minute.

Technical principles

OpenData

To use OpenData APIs please refer to the OpenData website where you can find per publication an API tab.

B2B XML Services

To establish an Internet connection with the B2B XML web services, the following rules must be observed:

- HTTP(S) must be used. No user id or password is required.
- Request must be sent by HTTP GET method.
- The content type should be "text/xml" and character set "ISO-8859-1".

In case of an error (invalid request, internal error or else), each method returns:

- an Error message or
- an HTTP status of 510, 400, 401, etc. instead of their normal output.

Publications

Imbalance Prices 1 & 15 minutes

These publications contain the cumulative imbalance prices per minute and quarter hours and the components that make up the imbalance price. The 1 minute publication is never validated. Both the 1 min & 15 min publication have near-real time dataset and a historical dataset. The near-real time dataset contains the data of the current day.

Location

Source	URL
1 Min Publication	
1 min **Elia.be** (no change in URL)	https://www.elia.be/en/grid-data/balancing/imbalance-prices-1-min
1 min near real-time OpenData (removed)	https://opendata.elia.be/explore/dataset/ods077/information/
1 min near real-time OpenData (new)	https://opendata.elia.be/explore/dataset/ods161/information/
1 min Historical OpenData (no change)	https://opendata.elia.be/explore/dataset/ods046/information/
⇨ Pre-MARI will be added in the title	
1 min Historical Post-MARI OpenData (new)	https://opendata.elia.be/explore/dataset/ods133/information/
1 min **GridData** (no change in URL)	https://griddata.elia.be/eliabecontrols.prod/interface/oneminuteimbalance/SystemImbalancePrice
15 Min Publication	
15 min **Elia.be** (no change)	https://www.elia.be/en/grid-data/balancing/imbalance-prices-15-min
15 min near real-time OpenData (removed)	https://opendata.elia.be/explore/dataset/ods078/information/
15 min near real-time OpenData (new)	https://opendata.elia.be/explore/dataset/ods162/information/
15 min Historical OpenData (no change in URL)	https://opendata.elia.be/explore/dataset/ods047/information/
⇨ Pre-MARI will be added in the title	
15 min Historical Post-MARI OpenData (new)	https://opendata.elia.be/explore/dataset/ods134/information/
15 min GridData (removed)	**https://griddata.elia.be/eliabecontrols.prod/interface/imbalancenrvprice/2024-03-28**
15 min **GridData** (new)	griddata.elia.be/eliabecontrols.prod/interface/imbalancenrvprice/QuarterHour/2024-03-28

Column names in different sources

Current Name	Status	OpenData	B2B XML Tag
Quarter	Unchanged	Quarter hour	<Date>2024-02-21T23:00:00Z</ Date>
Minute	Unchanged	Datetime	<Minute>2024-03-22T13:31:00Z</Minute>
Quality status	Unchanged	Quality status	<Status>Non-validated</Status>
NRV (MW)	Removed	Net regulation volume	N/A
ACE (MW)	NEW	ACE	<Ace>0</Ace>
SI (MW)	Unchanged	System Imbalance	<Si>-277.940</Si>
α (€/MWh)	Changed API field	Alpha	<Alpha1>3.50</Alpha1>
α' (€/MWh)	NEW	Alpha'	<Alpha2>3.50</Alpha2>
MIP (€/MWh)	Unchanged	Marginal incremental price	<Mip>212.15</Mip>
MDP (€/MWh)	Unchanged	Marginal decremental price	<Mdp>25.00</Mdp>
SR (€/MWh)	Removed	N/A	N/A
S < -I C (MW)	Removed	N/A	N/A
Price (€/MWh)	Change on Opendata	Imbalance Price	<Pneg>215.65</Pneg> or <Ppos>215.65</Ppos>

Column Definitions & Calculations

Column	Definition
Quarter	Start time of the corresponding quarter hour
Minute	The minute at the end of which the calculation has been performed. Example: “11:49” means that all events which occurred between 11:45:00.00 (hh:mm:ss) until 11:49:59.99 have been taken into account to compute the estimation of the data related to the quarter hour 11h45-12h00
Quality Status	Indication on the reliability of the data The possible values are the following: • Non-validated (default): no error registered during the calculation and publication run. The published data are likely but have not been validated by an operator • Data issue: at least one error registered during the calculation and publication run. The published data are uncertain and must be reviewed by an operator Important remark: the reference for the imbalance settlement are the 15-minute data
ACE (MW)	The Area Control Error (ACE) is the unintentional deviation from the scheduled control program for the power interchange of a control area. (all the intentional deviations from the program, due to units delivering FCR, or due to exchanges of energy on the EU balancing platforms, are therefore excluded from the ACE). In Belgium the ACE equals the FRCE (Frequency Restoration Control Error) **Note:** the ACE of the 1 min & 15 min publications can be different. The ACE 1 min is based on average instantaneous telemeasured data whereas the 15 min ACE uses metered values (MWh counter). The two ACE’s should normally be in line with each other but deviations are possible.
SI (MW)	The System Imbalance (SI) is the difference between the unintentional deviation from the scheduled control program for the power interchange of a control area and the frequency restoration reserves activated to cover the demands of this control area. In practice, it is calculated as described in article 30.7 of the T&C BRP $$SI = \Delta P + k\Delta f - (aFRR\ Requested + mFRR\ Requested)$$
α (€/MWh)	The alpha is an additional incentive applied on top of the MIP or MDP in cases of major system imbalances. **Calculation 1 & 15 min** If ABSOLUTE(SI) ≤ 150 MW α = 0 else: $$\alpha_1 = \left(a_1 + \frac{b_1}{1 + \exp\left(\frac{c_1 - x}{d_1}\right)}\right) * CP$$ The different parameters can be found in T&C BRP
α' (€/MWh)	Additional incentive applicable in cases of reserve sharing activations requested by Elia with neighboring TSO(s). The value of the alpha’ component is computed taking into account the

	marginal price of reserve sharing activations requested by Elia. As of the first connection to MARI/Picasso the a' becomes zero
MIP (€/MWh)	The marginal price of upward activations comprises, for a given quarter-hour, the lowest price of energy used for upward activations to compensate for the imbalance in the Belgian control area for that quarter-hour, a floor and a dead band. For more information see article 30 of T&C BRP **Calculation 1 & 15 min** If SI in [-25;0] $$MIP = \frac{(cap + floor)}{2}$$ Else $$MIP = \max(aFRR\ Component, mFRR\ Component, Floor)$$
MDP (€/MWh)	Marginal Decremental Price The marginal price of downward activations comprises, for a given quarter-hour, the lowest price of energy used for downward activations to compensate for the imbalance in the Belgian control area for that quarter-hour, a cap and a dead band. For more information see article 30 of T&C BRP **Calculation 1 & 15 min** The values published at a given minute are computed considering all the downwards activations requested by Elia between the start of the quarter hour and the end of the considered minute. If SI in]0;25] $$MDP = \frac{(cap + floor)}{2}$$ Else $$MDP = \min(aFRR\ Component, mFRR\ Component, Cap)$$
Price	Tariff used for the settlement of BRP's imbalances The values published at a given minute are computed considering all the data between the start of the quarter hour and the end of the considered minute.

XML & JSON Format

XML

```
<ArrayOfSystemImbalancePriceDetailDto
    xmlns:i="http://www.w3.org/2001/XMLSchema-instance"
    xmlns="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
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        <Ssi i:nil="true"/>
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        <Si>0.000</Si>
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        <Ssi i:nil="true"/>
        <Status>NV</Status>
    </SystemImbalancePriceDetailDto>
```

```
</ArrayOfSystemImbalancePriceDetailDto>
```

JSON


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      "minute": "2024-03-29T09:15:00Z",
      "status": "NV",
      "ace": 0,
      "nrv": null,
      "si": 0,
      "alpha1": 0,
      "alpha2": 0,
      "mip": 58.5,
      "mdp": 58.5,
      "sr": null,
      "ssi": null,
      "ppos": 58.5,
      "pneg": 0,
      "isVisible": true
    },
    {
      "quarter": "2024-03-29T09:15:00Z",
      "minute": "2024-03-29T09:16:00Z",
      "status": "NV",
      "ace": 0,
      "nrv": null,
      "si": 0,
      "alpha1": 0,
      "alpha2": 0,
      "mip": 51,
      "mdp": 51,
      "sr": null,
      "ssi": null,
      "ppos": 51,
      "pneg": 0,
      "isVisible": true
    }
  ]
```

Balancing Energy Volume Components 1 & 15 minutes

This publication contains the cumulative activated balancing volumes for Elia. The publication replaces the “Activated volumes 1 min and 15min’” publication.

Location

Source	URL
1 Min Publication	
1 min **Elia.be** (no change in URL)	**https://www.elia.be/en/grid-data/balancing/energy-activated-volumes-and-prices-1-min**
1 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods079/information/**
1 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods174/information/**
1 min Historical OpenData (no change) ⇨ Pre-MARI will be added in the title	**https://opendata.elia.be/explore/dataset/ods061/information/**
1 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods128/information/**
1 min **GridData** (removed)	**https://griddata.elia.be/eliabecontrols.prod/interface/oneminuteimbalance/ActivatedRegulationCapacityVolume**
1 min **GridData** (new)	**griddata.elia.be/eliabecontrols.prod/interface/oneminuteimbalance/BalancingEnergyVolumeAndPrice**
15 Min Publication	
15 min **Elia.be** (no change)	**https://www.elia.be/en/grid-data/balancing/energy-activated-volumes-and-prices-15-min**
15 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods081/information/**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods167/information/**
15 min Historical OpenData (no change in URL) ⇨ “Pre-MARI” will be added in the title	**https://opendata.elia.be/explore/dataset/ods064/information/**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods127/information/**
15 min **GridData** (only Pre-MARI data)	**https://griddata.elia.be/eliabecontrols.prod/interface/imbalancenrvprice/ActivatedEnergy/2024-03-24**
15 min GridData (new)	**https://griddata.elia.be/eliabecontrols.prod/interface/imbalancenrvprice/ActivatedEnergyV2/2024-05-22**

Column names in different sources

Current Name (old name)	Status	OpenData	B2B XML Tag
Quarter	Unchanged	Quarter hour	<Date>2024-02-21T23:00:00Z</Date>
Minute	Unchanged	Datetime	<CalculationTime>0001-01-01T00:00:00</CalculationTime>
Quality status	Unchanged	Quality status	N/A
NRV	Removed	Net regulation volume	N/A
SI	NEW	System Imbalance	<SI>0.000</SI>
ACE	NEW	ACE	<ace>0.000</ace>
SR	Removed	SR	N/A
GUV	Removed	GUV	N/A
IGCC+	Unchanged	IGCC+	<GCC_I>0.000</GCC_I>
aFRR+ (R2+-)	Renamed	aFRR+	<AFRR_UP>0.000</AFRR_UP>
Bids+	Removed	Bids+	N/A
mFRR SA+	NEW	mFRR SA+	<MFRR_SA_UP>0.000</MFRR_SA_UP>
mFRR DA+	NEW	mFRR DA+	<MFRR_DA_UP>0.000</MFRR_DA_UP>
R3 Std	Removed	R3 Std	N/A
R3 Flex	Removed	R3 Flex	N/A
Reserve Sharing+ (Inter-TSO Import)	Renamed	Reserve Sharing+	<InterTSO_I>0.000</InterTSO_I>
GDV	Removed	GDV	N/A
IGCC-	Unchanged	IGCC-	<GCC_D>0.000</GCC_D>
aFRR- (R2-)	Renamed	aFRR-	<AFRR_DOWN>0.000</AFRR_DOWN>
Bids-	Removed	Bids-	
mFRR SA-	NEW	mFRR SA-	<MFRR_SA_DOWN>0.000</MFRR_SA_DOWN>
mFRR DA-	NEW	mFRR DA-	MFRR_DA_DOWN>0.000</MFRR_DA_DOWN>
Reserve Sharing- (Inter-TSO Export)	Renamed	Reserve Sharing-	<InterTSO_E>0.000</InterTSO_E>

Column Definitions & Calculations

Column	Description
Quarter	Start time of the corresponding quarter hour
Minute	The minute at the end of which the calculation has been performed. Example: "11:49" means that all events which occurred between 11:45:00.00 (hh:mm:ss) until 11:49:59.99 have been taken into account to compute the estimation of the data related to the quarter hour 11h45-12h00
Quality Status	Indication on the reliability of the data The possible values are the following: • Non-validated (default): no error registered during the calculation and publication run. The published data are likely but have not been validated by an operator • Data issue: at least one error registered during the calculation and publication run. The published data are uncertain and must be reviewed by an operator Important remark: the reference for the imbalance settlement are the 15-minute data
SI (MW)	See Imbalance Prices 1 & 15 minutes
ACE (MW)	See Imbalance Prices 1 & 15 minutes
IGCC+ (MW)	Imported volume from neighboring LFC areas to Belgium the Belgian LFC area in case of negative imbalances in the Belgian LFC area. **15 min calculation** For every direction (upward and downward) the IGCC volume of the quarter hour is equal to the average of all IGCC volumes for every optimization cycle which is an element of the quarter hour. $$V_{IGCC,qh} = \frac{\sum_{OC \in qh} V_{IGCC,OC}}{\sum_{OC \in qh} 1}$$ - $V_{IGCC,OC}$ = The total IGCC volume of the optimization cycle - OC = Optimization Cycle, which is 4 seconds for IGCC - Qh = Quarter hour **1 min calculation** For every direction (upward and downward) the IGCC volume of minute m is equal to the average of all IGCC volumes of the optimization cycles which fall between the start of the quarter hour and minute m. $$V_{IGCC,minute\ m} = \frac{\sum_{OC \in [0,minute\ m]} V_{IGCC,OC}}{\sum_{OC \in [0,minute\ m]} 1}$$ - $V_{IGCC,OC}$ = The total IGCC volume of the optimization cycle - OC = Optimization Cycle, which is 4 seconds for IGCC

aFRR+ (MW)	Average volume of the aFRR satisfied demand in the positive direction (when connected to Picasso, when disconnected the average aFRR global control target is used). Pre-PICASSO: the average over the ISP (imbalance settlement period or applicable period in case of 1 min publication) of the sum of the positive aFRR Requested signals sent to the BSPs **15 min calculation** For every direction (upward and downward) the aFRR volume of the quarter hour is equal to the average of all aFRR volumes of every optimization cycle which is an element of the quarter hour. $$V_{aFRR,qh} = \frac{\sum_{OC \in qh} V_{aFRR,OC}}{\sum_{OC \in qh} 1}$$ - $V_{aFRR,OC}$ = The aFRR volume of the optimization cycle for all BSPs. This is the total activated aFRR volume over all BSPs - OC = Optimization Cycle, which is 4 seconds for aFRR - Qh = Quarter hour **1 min calculation** For every direction (upward and downward) the aFRR volume of minute m is equal to the average of all aFRR volumes of the optimization cycles which fall between the start of the quarter hour and minute m. $$V_{aFRR,minute\ m} = \frac{\sum_{OC \in [0,minute\ m]} V_{aFRR,OC}}{\sum_{OC \in [0,minute\ m]} 1}$$ - $V_{aFRR,OC}$ = The aFRR volume of the optimization cycle for all BSPs. This is the total activated aFRR volume over all BSPs - OC = Optimization Cycle, which is 4 seconds for aFRR **Volume determination per OC** **Pre-Picasso:** aFRR Requested per OC **Post-Picasso:** **Connected:** aFRR satisfied demand (excluding IGCC volume) **Disconnected:** aFRR Global Control Target
mFRR SA+ (MW)	Scheduled activated upward mFRR energy bids. **1 min & 15 min calculation** For every direction (upward and downward) the mFRR volume of the quarter hour is equal to the total sum of all mFRR satisfied demand for scheduled activation (SA) volumes coming from the MARI platform and all local mFRR SA activations for balancing purposes (activations not requested by MARI) for that quarter hour.

	$$V_{mFRR,SA,qh} = \sum V_{mFRR,SA,satisfied\ demand,qh} + V_{mFRR,SA,local\ balancing,qh}$$
mFRR DA+ (MW)	Direct activated upward mFRR energy bids. **1 min & 15 min calculation** For every direction (upward and downward) the mFRR volume of the quarter hour is equal to the total sum of all mFRR satisfied demand for direct activation (DA) volumes and all local mFRR DA activations for balancing purposes (activations not requested by MARI) for that quarter hour. $$V_{mFRR,DA,qh} = \sum V_{mFRR,DA,satisfied\ demand,qh} + V_{mFRR,DA,local\ balancing,qh}$$
Reserve Sharing+ (MW)	Activated upward (import) capacity from emergency support contracts with neighboring transmission system operators. Volumes requested by Elia **1 min & 15 min calculation** For every direction the Reserve Sharing volume of the quarter hour is equal to the total sum of all activated Reserve Sharing volumes for that quarter hour. $$V_{Reserve\ Sharing,qh} = \sum V_{Reserve\ Sharing\ activated,qh}$$
IGCC- (MW)	Exported volume from the Belgian LFC area to neighboring LFC areas in case of negative positive imbalances in the Belgian LFC area. **1 min & 15 min calculation** **See IGCC+**
aFRR- (MW)	Average volume of the aFRR satisfied demand in the negative direction (when connected to Picasso, when disconnected the average aFRR global control target is used). Pre-PICASSO: the average over the ISP (imbalance settlement period or applicable period in case of 1 min publication) of the sum of the positive aFRR Requested signals sent to the BSPs **1 min & 15 min calculation** **See aFRR+**
mFRR SA- (MW)	Volume of scheduled activated downward mFRR energy bids. **For 1 min & 15 min calculation** **See mFRR SA+**
mFRR DA- (MW)	Volume of direct activated downward mFRR energy bids. **For 1 min & 15 min calculation** **See mFRR DA+**

Reserve Sharing- (MW)	Activated downward (export) capacity from emergency support contracts with neighboring transmission system operators. Volumes requested by Elia **For 1 min & 15 min calculation** **See Reserve Sharing+**

XML & JSON Format

XML & JSON Format GridData can be found in 0 Balancing Price Components 1 & 15 minutes

Balancing Price Components 1 & 15 minutes

This publication contains the prices for activated balancing volumes for Elia. The different components make up the imbalance price. The publication replaces the “Activated prices 1 min and 15min’” publication.

Location

Source	URL
1 min **Elia.be** (no change in URL)	**https://www.elia.be/en/grid-data/balancing/energy-activated-volumes-and-prices-1-min**
1 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods080/information/**
1 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods175/information/**
1 min Historical OpenData (no change) ⇨ Pre-MARI will be added in the title	**https://opendata.elia.be/explore/dataset/ods061/information/**
1 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods165/information/**
1 min **GridData** (removed)	**https://griddata.elia.be/eliabecontrols.prod/interface/oneminuteimbalance/ActivatedRegulationCapacityPrice**
1 min GridData (new)	**griddata.elia.be/eliabecontrols.prod/interface/oneminuteimbalance/BalancingEnergyVolumeAndPrice**
15 min **Elia.be** (no change)	**https://www.elia.be/en/grid-data/balancing/energy-activated-volumes-and-prices-15-min**
15 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods082/information/**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods168/information/**
15 min Historical OpenData (no change in URL) ⇨ Pre-MARI will be added in the title	**https://opendata.elia.be/explore/dataset/ods064/information/**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods166/information/**
15 min **GridData** (only Pre-MARI data)	**https://griddata.elia.be/eliabecontrols.prod/interface/imbalancenrvprice/ActivatedEnergy/2024-03-24**
15 min GridData (new)	**https://griddata.elia.be/eliabecontrols.prod/interface/imbalancenrvprice/ActivatedEnergyV2/2024-05-22**

Column names in different sources

Current Name (old name)	Status	OpenData	B2B XML Tag
Quarter	Un-changed	Quarter hour	<Quarter>2024-03-29T09:15:00Z</Quarter>
Minute	Un-changed	Datetime	<CalculationTime>0001-01-01T00:00:00</Calculation-Time>
Quality Status	Un-changed	Quality Status	N/A
SI	Un-changed	System Imbalance	<SI>2121.800</SI>
NRV	Removed	NRV	N/A
ACE	New	ACE	<ACE>0.000</ACE>
SR	Removed	Strategic reserve price	N/A
MIP	Un-changed	Marginal incremental price	<MIP>0.000</MIP>
Floor	New	Floor	<FLOOR>0.000</FLOOR>
iGCC+	Removed	iGCC+	N/A
aFRR+ (R2)	Renamed	aFRR+	<AFRR_UP>0.000</AFRR_UP>
mFRR+ (Bids+)	Renamed	mFRR+	<MFRR_UP>0.0</MFRR_UP>
R3 Std	Removed	R3 Std	N/A
R3 Flex	Removed	R3 Flex	N/A
Inter-TSO Import	Renamed	Reserve Sharing+	<Price_InterTSO_I>0</Price_InterTSO_I>
MDP	Un-changed	Marginal decremental price	<MDP>0.000</MDP>
Cap	New	Cap	<CAP>0.000</CAP>
IGCC-	Removed	IGCC-	N/A
aFRR- (R2-)	Renamed	aFRR-	<AFRR_DOWN>0.000</AFRR_DOWN>
mFRR- (Bids-)	Renamed	mFRR-	<MFRR_DOWN>0.0</MFRR_DOWN>
Inter-TSO Export	Renamed	Reserve Sharing-	<Price_InterTSO_E>0</Price_InterTSO_E>

Column Definitions & Calculations

Column Definitions

Column	Description
Quarter	Start time of the corresponding quarter hour
Minute	The minute at the end of which the calculation has been performed. Example: “11:49” means that all events which occurred between 11:45:00.00 (hh:mm:ss) until 11:49:59.99 have been taken into account to compute the estimation of the data related to the quarter hour 11h45-12h00
Quality Status	Indication on the reliability of the data The possible values are the following: • Non-validated (default): no error registered during the calculation and publication run. The published data are likely but have not been validated by an operator • Data issue: at least one error registered during the calculation and publication run. The published data are uncertain and must be reviewed by an operator Important remark: the reference for the imbalance settlement are the 15-minute data
SI (MW)	See Imbalance Prices 1 & 15 minutes
ACE (MW)	See Imbalance Prices 1 & 15 minutes **Note:** the ACE of the 1- & 15-min publications can be different. The ACE 1 min is based on average instantaneous telemeasured data whereas the 15 min ACE uses metered values (MWh counter). The two ACE’s should normally be in line with each other but deviations are possible.
MIP (€/MWh)	See Imbalance Prices 1 & 15 minutes
Floor (€/MWh)	The minimum value of the Marginal Incremental Price when the System Imbalance is above the dead band. The floor is computed as the maximum of the Value of Avoided Activation (VoAA) in the positive and negative directions for the concerned quarter-hour. $Floor_{qh} = \max(VoAA_{aFRR,up};\ VoAA_{aFRR,down};\ VoAA_{mFRR_{up}};VoAA\_mFRR_{up})$
aFRR+ (€/MWh)	Volume weighted average of the CBMP (cross border marginal price) with aFRR satisfied demand as weighing factor (when connected to Picasso). When disconnected the local marginal price and the aFRR Global Control Target are used. Pre-Picasso the aFRR Requested volume and the prices of activated bids in the upward direction are used. **Calculation 15 min (for more explanations see T&C BRP)** **1. Not Connected to Picasso** $\frac{\sum_{k=activated\ bids\ per\ ISP}(aFRR\ Requested_{pos,act,k,ISP} * Time_{pos,act,k,ISP} * aFRR\ Price_{pos,act,k,ISP})}{\sum_{k=activated\ bids\ per\ ISP}(aFRR\ Requested_{pos,act,k,ISP} * Time_{pos,act,k,ISP})}$

	If there are no aFRR activations in the upward direction: aFRR+ = Price of the lowest bid of all aFRR bids for upward regulation at gate closure time for the corresponding imbalance settlement period (ISP) **2. Connected to Picasso** $$\frac{\sum_{OC_{ISP}}(abs(aFRR\ SD_{OC,ISP}) * MP\_aFRR_{OC,ISP}}{\sum_{OC_{ISP}}(abs(aFRR\ SD_{OC,ISP})}$$ If the calculation is not possible (e.g. because there is no Satisfied Demand): aFRR+ = Floor **3. Not Connect to Picasso (after first Picasso connection)** $$\frac{\sum_{ts\in ISP}(abs(Global\ CT_{ts}) * MP\_aFRR_{ts}}{\sum_{ts\in ISP}(abs(Global\ CT_{ts})}$$ If the calculation is not possible (e.g. because there is no Global Control Target != 0): aFRR+ = Floor **4. Partially connected to Picasso** If connection is lost the weighted average of formula 2 & 3 is taken. **Calculation 1 min** The calculations for the 1 min publication are done in the same way and consider all bids (upward) or optimization cycles from the start of the ISP until the end of the concerned minute.
mFRR+ (€/MWh)	The maximum price of the mFRR activations in the upward direction during the ISP for mFRR SA, DA and DA price of the previous QH **Calculation 15 min (for more explanations see T&C BRP)** $$P_{mFRR,qh,upward} = \max(P_{mFRR_{SA},qh}, P_{mFRR_{DA},qh,upward}, P_{mFRR_{DA},qh-1,upward})$$ Components are only considered if there is corresponding satisfied demand in the positive direction. **Calculation 1 min** $$P_{mFRR,min,upward} = \max(P_{mFRR_{SA},min}, P_{mFRR_{DA},min,upward}, P_{mFRR_{DA},qh-1,upward})$$ Components are only considered if there is corresponding satisfied demand in the positive direction.
Reserve Sharing+	The marginal price of reserve sharing activations requested by Elia with neighboring TSO in the upward direction (import). If a price is available for the reserve sharing activation, it is included in the calculation. For reserve sharing activations with Amprion a price is only available ex-post and thus not included in the real time published price. $$P_{ReserveSharing,qh,upward} = \max(P_{ReserveSharing,upward})$$

MDP (€/MWh)	See Imbalance Prices 1 & 15 minutes
Cap (€/MWh)	Is the maximum value of the Marginal Decremental Price when the System Imbalance is below the dead band. The cap is computed as the minimum of the Value of Avoided Activation (VoAA) in the positive and negative directions for the concerned quarter-hour. $Cap = \min(VoAA_{aFRR,up}; VoAA_{aFRR,down}; VoAA_{mFRR,up}; VoAA\_mFRR_{,up})$
aFRR- (€/MWh)	Volume weighted average of the CBMP (cross border marginal price) with aFRR satisfied demand as weighing factor (when connected to Picasso). When disconnected the local marginal price and the aFRR Global Control Target are used. Pre-Picasso the aFRR Requested volume and the prices of activated bids in the downward direction are used. **Calculation 15 min (for more explanations see T&C BRP)** **1. Not Connected to Picasso** $\frac{\sum_{k=activated\ bids\ per\ ISP}(aFRR\ Requested_{neg,act,k,ISP} * Time_{neg,act,k,ISP} * aFRR\ Price_{neg,act,k,ISP})}{\sum_{k=activated\ bids\ per\ ISP}(aFRR\ Requested_{neg,act,k,ISP} * Time_{neg,act,k,ISP})}$ If there are no aFRR activations in the downward direction: aFRR- = Price of the most expensive bid of all aFRR bids for downward regulation at gate closure time for the corresponding imbalance settlement period (ISP) **2. Connected to Picasso** $\frac{\sum_{OC_{ISP}}(abs(aFRR\ SD_{OC,ISP}) * MP\_aFRR_{OC,ISP}}{\sum_{OC_{ISP}}(abs(aFRR\ SD_{OC,ISP})}$ If the calculation is not possible (e.g. because there is no Satisfied Demand): aFRR- = Cap **3. Not Connect to Picasso (after first Picasso connection)** $\frac{\sum_{ts\in ISP}(abs(Global\ CT_{ts}) * MP\_aFRR_{ts}}{\sum_{ts\in ISP}(abs(Global\ CT_{ts})}$ If the calculation is not possible (e.g. because there is no Global Control Target != 0): aFRR- = Cap **4. Partially connected to Picasso** If connection is lost the weighted average of formula 2 & 3 is taken. **Calculation 1 min** The calculations for the 1 min publication are done in the same way and take into account all bids (downward) or optimization cycles from the start of the ISP until the end of the concerned minute.

mFRR- (€/MWh)	The minimum price of the mFRR activations in the downward direction during the ISP for mFRR SA, DA and DA price of the previous QH **Calculation 15 min (for more explanations see T&C BRP)** $P_{mFRR,qh,downward} = \min (P_{mFRR_{SA},qh}, P_{mFRR_{DA},qh,downward}, P_{mFRR_{DA},qh-1,downward})$ Components are only considered if there is corresponding satisfied demand in the negative direction. **Calculation 1 min** $P_{mFRR,min,upward} = \min (P_{mFRR_{SA},min}, P_{mFRR_{DA},min,downward}, P_{mFRR_{DA},qh-1,downward})$ Components are only considered if there is corresponding satisfied demand in the negative direction.
Reserve Sharing-	The marginal price of reserve sharing activations requested by Elia with neighboring TSO in the downward direction (export). If a price is available for the reserve sharing activation(s) it is included in the calculation. For reserve sharing activations with Amprion a price is only available ex-post and thus not included in the real time published price. $P_{ReserveSharing,qh,downward} = \min (P_{ReserveSharing,downward})$

XML & JSON Format

XML Format

```
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    xmlns:i="http://www.w3.org/2001/XMLSchema-instance"
    xmlns="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
trols.WebApi.Interface.Dto">
    <Data
        xmlns:d2p1="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
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        <Price>
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                <AFRR_UP>0.000</AFRR_UP>
                <BFU_D>0</BFU_D>
                <BFU_I>0</BFU_I>
                <CAP>0.000</CAP>
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                <FLOOR>0.000</FLOOR>
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                <GCC_I>0.000</GCC_I>
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                <LS>0.0</LS>
                <MDP>0.000</MDP>
                <MFRR_DOWN>0.0</MFRR_DOWN>
                <MFRR_UP>0.0</MFRR_UP>
                <MIP>0.000</MIP>
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                <R3E_BFU_I>0</R3E_BFU_I>
                <R3_FLEX>0</R3_FLEX>
                <R3_STD>0</R3_STD>
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                <ace>0.000</ace>
                <nrv i:nil="true"/>
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                <AFRR_UP>0.000</AFRR_UP>
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                <BFU_I>0</BFU_I>
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            <R3E_BFU_I>0</R3E_BFU_I>
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            <ace>0.000</ace>
            <nrv i:nil="true"/>
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```

```
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                <GDV>0</GDV>
                <GUV>0</GUV>
                <InterTSO_E>0.000</InterTSO_E>
                <InterTSO_I>0.000</InterTSO_I>
                <LS>0.0</LS>
                <MFRR_DA_DOWN>0.000</MFRR_DA_DOWN>
                <MFRR_DA_UP>0.000</MFRR_DA_UP>
                <MFRR_SA_DOWN>0.000</MFRR_SA_DOWN>
                <MFRR_SA_UP>0.000</MFRR_SA_UP>
                <R3E_BFU_D>0.0</R3E_BFU_D>
                <R3E_BFU_I>0</R3E_BFU_I>
                <R3_FLEX>0</R3_FLEX>
                <R3_STD>0</R3_STD>
                <SI>0.000</SI>
                <SR i:nil="true"/>
                <ace>0.000</ace>
                <nrv i:nil="true"/>
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    </Data>
    <ReportInfo
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i:nil="true"/>
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JSON Format


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{
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          "bfU_D": 0,
          "bfU_I": 0,
          "cap": 0,
          "gcC_D": 0,
          "floor": 0,
          "gcC_I": 0,
          "interTSO_E": 0,
          "interTSO_I": 0,
          "ls": 0,
          "mdp": 0,
          "mip": 0,
          "afrR_DOWN": 0,
          "afrR_UP": 0,
          "r3E_BFU_D": 0,
          "r3E_BFU_I": 0,
          "r3_FLEX": 0,
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          "sr": null,
          "mfrR_DOWN": 0,
          "mfrR_UP": 0
        },
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          "bfU_I": 0,
          "cap": 0,
          "gcC_D": 0,
          "floor": 0,
          "gcC_I": 0,
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          "interTSO_I": 0,
          "ls": 0,
          "mdp": 0,
          "mip": 0,
```

```
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        "afrR_UP": 0,
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        "r3E_BFU_I": 0,
        "r3_FLEX": 0,
        "r3_STD": 0,
        "sr": null,
        "mfrR_DOWN": 0,
        "mfrR_UP": 0
      }
    ],
    "volume": [
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        "r3_FLEX": 0,
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        "sr": null,
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```

```
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          "mfrR_DA_DOWN": 0
        }
      ]
    }
  }
```

Activated volumes in Belgium 15 minutes

This publication contains the activated balancing volumes in Belgium for Elia or for other TSOs.

Location

Source	URL
15 min **Elia.be** (no change)	**To be confirmed**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods135/information/**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods132/information/**
15 min GridData (new)	**griddata.elia.be/eliabecontrols.prod/interface/energyvolumeactivatedinbelgium/details?refDate=2024-03-06**

Column names in different sources

Current Name	Status	OpenData	B2B XML Tag
Quarter	New	Datetime	`<QuarterUtc>2024-03-05T23:00:00Z</QuarterUtc>`
aFRR+	New	aFRR BE+	`<AfrrP>0.58</AfrrP>`
mFRR SA+	New	mFRR BE SA+	`<MfrrSaP>0.49</MfrrSaP>`
mFRR DA+	New	mFRR BE DA+	`<MfrrDaP>0.37</MfrrDaP>`
aFRR-	New	aFRR BE-	`<AfrrM>0.75</AfrrM>`
mFRR SA-	New	mFRR BE SA-	`<MfrrSaM>0.092</MfrrSaM>`
mFRR DA-	New	mFRR BE DA-	`<MfrrDaM>0.42</MfrrDaM>`

Column Definitions & Calculations

Column	Description
Quarter	Start time of the corresponding quarter hour
aFRR+	Activated aFRR volume in the positive direction. Considers all aFRR volumes in the positive direction no matter if the activation is for Elia or another TSO. For every direction (upward and downward) the aFRR volume activated in Belgium of the quarter hour is equal to the average of all activated aFRR volumes of every optimization cycle which is an element of the quarter hour. $$V_{aFRR\_BELGIUM,qh} = \frac{\sum_{OC \in qh} V_{aFRR\_ACTIVATED,OC}}{\sum_{OC \in qh} 1}$$ - $V_{aFRR\_ACTIVATED,OC}$ = The activated aFRR volume of the optimization cycle for all BSPs. This is the total activated aFRR volume over all BSPs - OC = Optimization Cycle, which is 4 seconds for aFRR - Qh = Quarter hour

The $V_{aFRR\_ACTIVATED,OC}$ comes from the aFRR Requested signals sent to BSPs in Belgium.

This calculation will only be done as of Picasso. The activated volume of aFRR in Belgium before Picasso is equal to the volume published in XML & JSON Format

XML

<ArrayOfSystemImbalancePriceDetailDto

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    xmlns="http://schemas.datacon-
tract.org/2004/07/Elia.EliaBeControls.WebApi.Inter-
face.Dto.OneMinuteImbalance">
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tract.org/2004/07/Elia.EliaBeControls.WebApi.Inter-
face.Dto">true
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tract.org/2004/07/Elia.EliaBeControls.WebApi.Inter-
face.Dto">true
        </IsVisible>
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```

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        <Si>0.000</Si>
        <Sr i:nil="true"/>
        <Ssi i:nil="true"/>
        <Status>NV</Status>
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```

JSON

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      "sr": null,
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      "pneg": 0,
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      "ppos": 51,
      "pneg": 0,
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```

```
    }
  ]
```


Balancing Energy Volume Components 1 & 15 minutes

mFRR SA+	Activated mFRR Scheduled Activation in the positive direction For every direction (upward and downward) the mFRR volume activated in Belgium of the quarter hour is equal to the sum of all mFRR activations for balancing purposes. The calculation is done per activation type: $$V_{mFRR_{BELGIUM},SA,qh} = \sum V_{mFRR,SA,balancing,qh}$$ **Reserve sharing activation done by Elia on request of neighboring TSOs is also included**
mFRR DA+	Activated mFRR Direct Activation in the positive direction For every direction (upward and downward) the mFRR volume activated in Belgium of the quarter hour is equal to the sum of all mFRR activations for balancing purposes. The calculation is done per activation type: $$V_{mFRR_{BELGIUM},DA,qh} = \sum V_{mFRR,DA,balancing,qh}$$ **Reserve sharing activation done by Elia on request of neighboring TSOs is also included**
aFRR-	Activated aFRR volume in the negative direction. Considers all aFRR volumes in the positive direction no matter if the activation is for Elia or another TSO. For every direction (upward and downward) the aFRR volume activated in Belgium of the quarter hour is equal to the average of all activated aFRR volumes of every optimization cycle which is an element of the quarter hour. $$V_{aFRR\_BELGIUM,qh} = \frac{\sum_{OC \in qh} V_{aFRR\_ACTIVATED,OC}}{\sum_{OC \in qh} 1}$$ - $V_{aFRR\_ACTIVATED,OC}$ = The activated aFRR volume of the optimization cycle for all BSPs. This is the total activated aFRR volume over all BSPs - OC = Optimization Cycle, which is 4 seconds for aFRR - Qh = Quarter hour The $V_{aFRR\_ACTIVATED,OC}$ comes from the aFRR Requested signals sent to BSPs in Belgium.

This calculation will only be done as of Picasso. The activated volume of aFRR in Belgium before Picasso is equal to the volume published in XML & JSON Format

XML

<ArrayOfSystemImbalancePriceDetailDto

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face.Dto.OneMinuteImbalance">
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  <Alpha2>0.000</Alpha2>
        <Mdp>50.000</Mdp>
        <Minute>2024-03-29T09:14:00Z</Minute>
        <Mip>50.000</Mip>
        <Nrv i:nil="true"/>
        <Pneg>0.0</Pneg>
        <Ppos>50.000</Ppos>
        <Quarter>2024-03-29T09:00:00Z</Quarter>
        <Si>0.000</Si>
        <Sr i:nil="true"/>
        <Ssi i:nil="true"/>
        <Status>NV</Status>
    </SystemImbalancePriceDetailDto>
    <SystemImbalancePriceDetailDto>
        <IsVisible
            xmlns="http://schemas.datacon-
tract.org/2004/07/Elia.EliaBeControls.WebApi.Inter-
face.Dto">true
        </IsVisible>
        <Ace>0.000</Ace>
        <Alpha1>0.000</Alpha1>
        <Alpha2>0.000</Alpha2>
        <Mdp>58.500</Mdp>
        <Minute>2024-03-29T09:15:00Z</Minute>
        <Mip>58.500</Mip>
        <Nrv i:nil="true"/>
        <Pneg>0.0</Pneg>
        <Ppos>58.500</Ppos>
```

```
        <Quarter>2024-03-29T09:15:00Z</Quarter>
        <Si>0.000</Si>
        <Sr i:nil="true"/>
        <Ssi i:nil="true"/>
        <Status>NV</Status>
    </SystemImbalancePriceDetailDto>
</ArrayOfSystemImbalancePriceDetailDto>
```

JSON

```
[
    {
      "quarter": "2024-03-29T09:15:00Z",
      "minute": "2024-03-29T09:15:00Z",
      "status": "NV",
      "ace": 0,
      "nrv": null,
      "si": 0,
      "alpha1": 0,
      "alpha2": 0,
      "mip": 58.5,
      "mdp": 58.5,
      "sr": null,
      "ssi": null,
      "ppos": 58.5,
      "pneg": 0,
      "isVisible": true
    },
    {
      "quarter": "2024-03-29T09:15:00Z",
      "minute": "2024-03-29T09:16:00Z",
      "status": "NV",
      "ace": 0,
      "nrv": null,
      "si": 0,
      "alpha1": 0,
      "alpha2": 0,
      "mip": 51,
      "mdp": 51,
      "sr": null,
      "ssi": null,
      "ppos": 51,
      "pneg": 0,
      "isVisible": true
    }
  ]
```

	Balancing Energy Volume Components 1 & 15 minutes
mFRR SA-	Activated mFRR Scheduled Activation in the negative direction. For every direction (upward and downward) the mFRR volume activated in Belgium of the quarter hour is equal to the sum of all mFRR activations for balancing purposes. The calculation is done per activation type: $$V_{mFRR_{BELGIUM},SA,qh} = \sum V_{mFRR,SA,balancing,qh}$$ **Reserve sharing activation done by Elia on request of neighboring TSOs is also included**
mFRR DA-	Activated mFRR Direct Activation in the negative direction. For every direction (upward and downward) the mFRR volume activated in Belgium of the quarter hour is equal to the sum of all mFRR activations for balancing purposes. The calculation is done per activation type: $$V_{mFRR_{BELGIUM},DA,qh} = \sum V_{mFRR,DA,balancing,qh}$$ **Reserve sharing activation done by Elia on request of neighboring TSOs is also included**

XML & JSON Format

XML Format

```
<ArrayOfBalancingEnergyVolumeActivatedInBelgiumDetailDto
    xmlns:i="http://www.w3.org/2001/XMLSchema-instance"
    xmlns="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
trols.WebApi.Interface.Dto.Balancing">
    <BalancingEnergyVolumeActivatedInBelgiumDetailDto>
        <AfrrM>0.75319616391938</AfrrM>
        <AfrrP>0.589701231843653</AfrrP>
        <MfrrDaM>0.421921044784561</MfrrDaM>
        <MfrrDaP>0.370480025359653</MfrrDaP>
        <MfrrSaM>0.0999390027019842</MfrrSaM>
        <MfrrSaP>0.493500062494306</MfrrSaP>
        <QuarterUtc>2024-03-05T23:00:00Z</QuarterUtc>
    </BalancingEnergyVolumeActivatedInBelgiumDetailDto>
    <BalancingEnergyVolumeActivatedInBelgiumDetailDto>
        <AfrrM>0.259860266586701</AfrrM>
        <AfrrP>0.737075290985906</AfrrP>
        <MfrrDaM>0.332565720347951</MfrrDaM>
        <MfrrDaP>0.881591558866944</MfrrDaP>
        <MfrrSaM>0.791701443862031</MfrrSaM>
        <MfrrSaP>0.857506212246374</MfrrSaP>
        <QuarterUtc>2024-03-05T23:15:00Z</QuarterUtc>
    </BalancingEnergyVolumeActivatedInBelgiumDetailDto>
</ArrayOfBalancingEnergyVolumeActivatedInBelgiumDetailDto>
```

JSON Format

```
[
  {
    "quarterUtc": "2024-03-05T23:00:00Z",
    "afrrP": 0.589701231843653,
    "afrrM": 0.75319616391938,
    "mfrrDaM": 0.421921044784561,
    "mfrrDaP": 0.370480025359653,
    "mfrrSaM": 0.0999390027019842,
    "mfrrSaP": 0.493500062494306
  },
  {
    "quarterUtc": "2024-03-05T23:15:00Z",
    "afrrP": 0.737075290985906,
    "afrrM": 0.259860266586701,
    "mfrrDaM": 0.332565720347951,
    "mfrrDaP": 0.881591558866944,
    "mfrrSaM": 0.791701443862031,
    "mfrrSaP": 0.857506212246374  }]
```

Current System Imbalance per minute 1 & 15 minutes

This publication contains the instantaneous system imbalance per minute, the published values are only related to the minute itself and not cumulative like the other one minute publications. The publication only contains non-validated data.

Location

Source	URL
Elia.be (unchanged)	**https://www.elia.be/en/grid-data/balancing/current-system-imbalance**
1 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods088/information/**
1 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods169/information/**
OpenData (Historical) ⇨ Pre-MARI will be added in the title	**https://opendata.elia.be/explore/dataset/ods045/information/**
1 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods126/information/**
15 min **GridData** (only Pre-MARI data)	**https://griddata.elia.be/eliabecontrols.prod/interface/internetimbalance/legacy/imbalancemeasures**
15 min **GridData** (new)	**https://griddata.elia.be/eliabecontrols.prod /interface/internetimbalance/imbalancemeasures/Today**

Column names in different sources

Current Name	Status	OpenData	B2B XML Tag
Time	Unchanged	Datetime	<DateTimeUtc>2024-03-25T23:00:00Z</DateTimeUtc>
SI (MW)	Unchanged	System imbalance	<SI>-22.88</SI>
ACE (MW)	NEW	ACE	<ACE>177.74</ACE>
NRV	Removed	Net regulation volume	N/A
SR	Removed	SR	N/A
GUV	Removed	GUV	N/A
IGCC+ (MW)	Unchanged	IGCC+	<IGCC_P>100.26</IGCC_P>
aFRR+ (MW)	Unchanged	aFRR+	<R2_P>108.76</R2_P>
mFRR SA+ (MW)	NEW	mFRR SA+	<MfrrsaUp>192.95</MfrrsaUp>
mFRR DA+ (MW)	NEW	mFRR DA+	<MfrrdaUp>-105.51</MfrrdaUp>
Reserve Sharing +	NEW	Reserve Sharing+	<InterTsoImport>114.41</InterTsoImport>
IGCC- (MW)	Unchanged	IGCC-	<IGCC_M>186.23</IGCC_M>
aFRR- (MW)	Unchanged	aFRR-	<R2_M>108.76</R2_M>
mFRR SA- (MW)	Removed	mFRR SA-	<MfrrsaDown>-162.92</MfrrsaDown>
mFRR DA- (MW)	NEW	mFRR DA-	<MfrrdaDown>110.28</MfrrdaDown>
Reserve Sharing – (MW)	NEW	Reserve Sharing-	<InterTsoExport>-173.87</InterTsoExport>
Bids+	Removed	Bids+	N/A
Bids-	Removed	Bids-	N/A
mFRR Standard	Removed	mFRR Standard	N/A
mFRR Flex	Removed	mFRR Flex	N/A
GDV	Removed	GDV	N/A

Column Definitions

Column	Description
Time	The concerned minute for which the instantaneous values are published
SI (MW)	See Imbalance Prices 1 & 15 minutes
ACE (MW)	See Imbalance Prices 1 & 15 minutes
IGCC+ (MW)	Imported volume from neighboring LFC areas to Belgium the Belgian LFC area in case of negative imbalances in the Belgian LFC area.
aFRR+ (MW)	Average volume of the aFRR satisfied demand in the positive direction (when connected to Picasso, when disconnected the average aFRR global control target is used). Pre-PICASSO: the average over the ISP (imbalance settlement period or applicable period in case of 1 min publication) of the sum of the positive aFRR Requested signals sent to the BSPs
mFRR SA+ (MW)	Volume of scheduled activated upward mFRR energy bids.
mFRR DA+ (MW)	Volume of directly activated upward mFRR energy bids.
Reserve Sharing + (MW)	Activated upward (import) capacity from emergency support contracts with neighboring transmission system operators.
IGCC- (MW)	Exported volume from the Belgian LFC area to neighboring LFC areas in case of negative positive imbalances in the Belgian LFC area.
aFRR- (MW)	Average volume of the aFRR satisfied demand in the negative direction (when connected to Picasso, when disconnected the average aFRR global control target is used). Pre-PICASSO: the average over the ISP (imbalance settlement period or applicable period in case of 1 min publication) of the sum of the positive aFRR Requested signals sent to the BSPs
mFRR SA- (MW)	Volume of scheduled activated downward mFRR energy bids
mFRR DA- (MW)	Volume of direct activated downward mFRR energy bids.
Reserve Sharing – (MW)	Activated downward (export) capacity from emergency support contracts with neighboring transmission system operators.

XML & JSON Format

XML

```
  <ReportDetailOfArrayOfActualSystemImbalanceAndBelgiumBal-
ancingStatusFromPicassoDto9Cvz0baM
    xmlns:i="http://www.w3.org/2001/XMLSchema-instance"
    xmlns="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
trols.WebApi.Interface.Dto">
    <Data
        xmlns:d2p1="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
trols.WebApi.Interface.Dto.Balancing">
        <ActualSystemImbalanceAndBelgiumBalancingStatusFromPicassoDto>
            <ACE>177.74</ACE>
            <Afrr>61.06</Afrr>
            <Bids_M>174.35</Bids_M>
            <Bids_P>147.88</Bids_P>
            <CalculatedNRV>-12.08</CalculatedNRV>
            <CalculatedSI>-94.08</CalculatedSI>
            <CumulatedACE>-99.34</CumulatedACE>
            <CumulatedNRV>-149.61</CumulatedNRV>
            <CumulatedSI>-2.18</CumulatedSI>
            <DateTimeUtc>2024-03-25T23:00:00Z</DateTimeUtc>
            <GDV>165.95</GDV>
            <GUV>-110.42</GUV>
            <IGCC_M>186.23</IGCC_M>
            <IGCC_P>100.26</IGCC_P>
            <InterTsoExport>-173.87</InterTsoExport>
            <InterTsoImport>114.41</InterTsoImport>
            <Mfrr>81.98</Mfrr>
            <Mfrr_M i:nil="true"/>
            <Mfrr_P i:nil="true"/>
            <MfrrdaDown>110.28</MfrrdaDown>
            <MfrrdaUp>-105.51</MfrrdaUp>
            <MfrrsaDown>-162.92</MfrrsaDown>
            <MfrrsaUp>192.95</MfrrsaUp>
            <NRV>15.3</NRV>
            <R2_M>108.76</R2_M>
            <R2_P>22.94</R2_P>
            <R3_FLEX>-54.5</R3_FLEX>
            <R3_STD>-118.97</R3_STD>
            <SI>-22.88</SI>
        </ActualSystemImbalanceAndBelgiumBalancingStatusFromPicassoDto>
```

```
        <ActualSystemImbalanceAndBelgiumBalancingStatusFromPicassoDto>
            <ACE>164.18</ACE>
            <Afrr>11.3</Afrr>
            <Bids_M>123.95</Bids_M>
            <Bids_P>132.22</Bids_P>
            <CalculatedNRV>-113.76</CalculatedNRV>
            <CalculatedSI>190.2</CalculatedSI>
            <CumulatedACE>185.87</CumulatedACE>
            <CumulatedNRV>-37.23</CumulatedNRV>
            <CumulatedSI>92.62</CumulatedSI>
            <DateTimeUtc>2024-03-25T23:01:00Z</DateTimeUtc>
            <GDV>-140.02</GDV>
            <GUV>99.89</GUV>
            <IGCC_M>-136.55</IGCC_M>
            <IGCC_P>-162.99</IGCC_P>
            <InterTsoExport>-59.31</InterTsoExport>
            <InterTsoImport>144.15</InterTsoImport>
            <Mfrr>4.73</Mfrr>
            <Mfrr_M i:nil="true"/>
            <Mfrr_P i:nil="true"/>
            <MfrrdaDown>26.41</MfrrdaDown>
            <MfrrdaUp>134.83</MfrrdaUp>
            <MfrrsaDown>9.24</MfrrsaDown>
            <MfrrsaUp>-70.22</MfrrsaUp>
            <NRV>-109.91</NRV>
            <R2_M>7.15</R2_M>
            <R2_P>14.96</R2_P>
            <R3_FLEX>152.49</R3_FLEX>
            <R3_STD>-156.78</R3_STD>
            <SI>197.1</SI>
        </ActualSystemImbalanceAndBelgiumBalancingStatusFromPicassoDto>
    </Data>
    <ReportInfo
        xmlns:d2p1="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <KeyValueOfstringanyType>
            <Key>ReportStart</Key>
            <Value
                xmlns:d4p1="http://www.w3.org/2001/XMLSchema"
i:type="d4p1:dateTime">2024-03-25T23:00:00Z
            </Value>
        </KeyValueOfstringanyType>
        <KeyValueOfstringanyType>
```

```
            <Key>ReportEnd</Key>
            <Value
                xmlns:d4p1="http://www.w3.org/2001/XMLSchema"
i:type="d4p1:dateTime">2024-03-26T16:33:00Z
            </Value>
        </KeyValueOfstringanyType>
    </ReportInfo>
</ReportDetailOfArrayOfActualSystemImbalanceAndBelgiumBal-
ancingStatusFromPicassoDto9Cvz0baM>
```

JSON

```
{
    "reportInfo": {
      "reportStart": "2024-03-25T23:00:00Z",
      "reportEnd": "2024-03-26T16:40:00Z"
    },
    "data": [
      {
        "dateTimeUtc": "2024-03-25T23:00:00Z",
        "interTsoImport": 114.41,
        "interTsoExport": -173.87,
        "r3_STD": -118.97,
        "r3_FLEX": -54.5,
        "si": -22.88,
        "cumulatedSI": -2.18,
        "nrv": 15.3,
        "cumulatedACE": -99.34,
        "cumulatedNRV": -149.61,
        "ace": 177.74,
        "r2_P": 22.94,
        "r2_M": 108.76,
        "igcC_P": 100.26,
        "igcC_M": 186.23,
        "gdv": 165.95,
        "guv": -110.42,
        "calculatedNRV": -12.08,
        "calculatedSI": -94.08,
        "afrr": 61.06,
        "mfrr": 81.98,
        "mfrr_P": null,
        "mfrr_M": null,
```

```
        "bids_P": 147.88,
        "bids_M": 174.35,
        "mfrrsaUp": 192.95,
        "mfrrsaDown": -162.92,
        "mfrrdaUp": -105.51,
        "mfrrdaDown": 110.28
      },
      {
        "dateTimeUtc": "2024-03-25T23:01:00Z",
        "interTsoImport": 144.15,
        "interTsoExport": -59.31,
        "r3_STD": -156.78,
        "r3_FLEX": 152.49,
        "si": 197.1,
        "cumulatedSI": 92.62,
        "nrv": -109.91,
        "cumulatedACE": 185.87,
        "cumulatedNRV": -37.23,
        "ace": 164.18,
        "r2_P": 14.96,
        "r2_M": 7.15,
        "igcC_P": -162.99,
        "igcC_M": -136.55,
        "gdv": -140.02,
        "guv": 99.89,
        "calculatedNRV": -113.76,
        "calculatedSI": 190.2,
        "afrr": 11.3,
        "mfrr": 4.73,
        "mfrr_P": null,
        "mfrr_M": null,
        "bids_P": 132.22,
        "bids_M": 123.95,
        "mfrrsaUp": -70.22,
        "mfrrsaDown": 9.24,
        "mfrrdaUp": 134.83,
        "mfrrdaDown": 26.41
      }
  ]
}
```

Bidding prices by volume level (removed)

This publication will be removed.

Elia published marginal prices for each volume level of the available balancing energy. The goal of this publication was to estimate the imbalance price in function of the volume activated to balance the Belgian zone.
However, with the European platforms, the imbalance price does not only depend on the Belgian balancing need and the bids available in Belgium, but also on the bids & needs of other TSOs so this publication would be providing misleading information if it stayed

Location

Source	URL
15 min **Elia.be** (removed)	**https://www.elia.be/en/grid-data/balancing/energy-bidding-prices-per-volume-level**
15 min **OpenData** (no longer updated)	**https://opendata.elia.be/explore/dataset/ods083/information/**
15 min **GridData** (no longer updated)	**publications.elia.be/Publications/Publications/AvailableEnergy.v7.svc/GetAvailableEnergyVolumeLevelPrices?day=2013-09-24**

Available volumes in Belgium

This publication contains the available balancing volumes in Belgium.

Location

Source	URL
15 Min Publication	
15 min **Elia.be** (no change)	**https://www.elia.be/en/grid-data/balancing/energy-available-volumes-and-prices**
15 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods084/information/**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods154/information/**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods152/information/**
15 min **GridData** (only Pre-MARI data)	**https://griddata.elia.be/eliabecontrols.prod/interface/availableenergy/legacy/volumes/2024-03-25**
15 min GridData (new)	**griddata.elia.be/eliabecontrols.prod/interface/availableenergy/newvolumesandprices/2023-11-28**

Column names in different sources

Current Name	Status	OpenData	B2B XML Tag
Quarter	New	Datetime	`<DateTimeUtc>2023-11-28T12:30:00Z</DateTimeUtc>`
Reserve sharing-	New	Reserve sharing-	`<Volume_D_ReserveSharing>0</Volume_D_ReserveSharing>`
mFRR-	New	mFRR-	`<Volume_D_mFRR>25</Volume_D_mFRR>`
aFRR-	New	aFRR-	`<Volume_D_aFRR>23</Volume_D_aFRR>`
aFRR+	New	aFRR+	`<Volume_I_aFRR>12</Volume_I_aFRR>`
mFRR+	New	mFRR+	`<Volume_I_mFRR>100.0</Volume_I_mFRR>`
Reserve Sharing+	New	Reserve Sharing+	`<Volume_I_ReserveSharing>0</Volume_I_ReserveSharing>`

Column Definitions & Calculations

Column	Description
Quarter	Start time of the corresponding quarter hour
Reserve sharing-	Available downward (export) capacity from emergency support contracts with neighboring transmission system operators. The Reserve Sharing volume per quarter hour and for a direction equals the sum of the Reserve Sharing volumes of all participating TSOs, for that quarter hour and for that direction: $Reserve\ Sharing\ volume_{qh,direction} = \sum_{TSO_i} Reserve\ Sharing\ volume_{TSO_i,qh,direction}$
mFRR-	Available downward mFRR volumes in Belgium both SA & DA The available volume per quarter hour for a product and a direction equals the sum of the available bid volumes of the bids for that product, for that quarter hour and for that direction: $Available\ volume_{qh,product,direction} = \sum_{i} Bid\ Volume_{i,qh,product,direction}$ For mFRR: For mFRR bids which are part of an exclusive group, only the Bid Volume of the Bid with the greatest Bid Volume, is taken into account. For other mFRR bids, all available Bid Volumes are taken into account. For aFRR all available Bid Volumes are taken into account Volumes which are CRI filtered are not included in the available volume calculation.
aFRR-	Available downward aFRR volumes in Belgium **See mFRR- for calculation**
aFRR+	Available upward aFRR volumes in Belgium **See mFRR- for calculation**
mFRR+	Available upward mFRR volumes in Belgium both SA & DA **See mFRR- for calculation**

Reserve Sharing+	Available upward (import) capacity from emergency support contracts with neighboring transmission system operators. **See Reserve Sharing- for calculation.**

XML & JSON Format

XML Format

```
<AvailableVolumesAndPricesByQuarterHourV2Dto>
    <DateTimeUtc>2023-11-28T12:30:00Z</DateTimeUtc>
    <Price_D_ReserveSharing i:nil="true"/>
    <Price_D_aFRR i:nil="true"/>
    <Price_D_mFRR i:nil="true"/>
    <Price_I_ReserveSharing i:nil="true"/>
    <Price_I_aFRR i:nil="true"/>
    <Price_I_mFRR>10.0</Price_I_mFRR>
    <Price_Tick>55.0</Price_Tick>
    <Volume_D_ReserveSharing i:nil="true"/>
    <Volume_D_Total i:nil="true"/>
    <Volume_D_aFRR i:nil="true"/>
    <Volume_D_mFRR i:nil="true"/>
    <Volume_I_ReserveSharing i:nil="true"/>
    <Volume_I_Total>100.0</Volume_I_Total>
    <Volume_I_aFRR i:nil="true"/>
    <Volume_I_mFRR>100.0</Volume_I_mFRR>
    <Volume_Tick>55.0</Volume_Tick>
</AvailableVolumesAndPricesByQuarterHourV2Dto>
<AvailableVolumesAndPricesByQuarterHourV2Dto>
    <DateTimeUtc>2023-11-28T12:45:00Z</DateTimeUtc>
    <Price_D_ReserveSharing i:nil="true"/>
    <Price_D_aFRR i:nil="true"/>
    <Price_D_mFRR i:nil="true"/>
    <Price_I_ReserveSharing i:nil="true"/>
    <Price_I_aFRR i:nil="true"/>
    <Price_I_mFRR>10.0</Price_I_mFRR>
    <Price_Tick>56.0</Price_Tick>
    <Volume_D_ReserveSharing i:nil="true"/>
    <Volume_D_Total i:nil="true"/>
    <Volume_D_aFRR i:nil="true"/>
    <Volume_D_mFRR i:nil="true"/>
    <Volume_I_ReserveSharing i:nil="true"/>
    <Volume_I_Total>100.0</Volume_I_Total>
    <Volume_I_aFRR i:nil="true"/>
    <Volume_I_mFRR>100.0</Volume_I_mFRR>
    <Volume_Tick>56.0</Volume_Tick>
</AvailableVolumesAndPricesByQuarterHourV2Dto>undefined</ArrayOfAvaila-
bleVolumesAndPricesByQuarterHourV2Dto>
```

JSON Format


```
[
  {
    "dateTimeUtc": "2023-11-28T12:30:00Z",
    "volume_Tick": 55,
    "volume_D_aFRR": null,
    "volume_D_mFRR": null,
    "volume_D_ReserveSharing": null,
    "volume_D_Total": null,
    "volume_I_aFRR": null,
    "volume_I_mFRR": 100,
    "volume_I_ReserveSharing": null,
    "volume_I_Total": 100,
    "price_Tick": 55,
    "price_D_aFRR": null,
    "price_D_mFRR": null,
    "price_D_ReserveSharing": null,
    "price_I_aFRR": null,
    "price_I_mFRR": 10,
    "price_I_ReserveSharing": null
  },
  {
    "dateTimeUtc": "2023-11-28T12:45:00Z",
    "volume_Tick": 56,
    "volume_D_aFRR": null,
    "volume_D_mFRR": null,
    "volume_D_ReserveSharing": null,
    "volume_D_Total": null,
    "volume_I_aFRR": null,
    "volume_I_mFRR": 100,
    "volume_I_ReserveSharing": null,
    "volume_I_Total": 100,
    "price_Tick": 56,
    "price_D_aFRR": null,
    "price_D_mFRR": null,
    "price_D_ReserveSharing": null,
    "price_I_aFRR": null,
    "price_I_mFRR": 10,
```

```
    "price_I_ReserveSharing": null
  }
]
```

Prices of available volumes in Belgium

Publication of the prices of volumes that are available in Belgium for balancing.

Location

Source	URL
15 Min Publication	
15 min **Elia.be** (no change)	**https://www.elia.be/en/grid-data/balancing/energy-available-volumes-and-prices**
15 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods085/information/**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods155/information/**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods153/information/**
15 min **GridData** (only Pre-MARI data)	**https://griddata.elia.be/eliabecontrols.prod/interface/availableenergy/legacy/price/2024-03-25**
15 min GridData (new)	**griddata.elia.be/eliabecontrols.prod/interface/availableenergy/newvolumesandprices/2023-11-28**

Column names in different sources

Current Name	Status	OpenData	B2B XML Tag
Quarter	New	Datetime	`<DateTimeUtc>2023-11-28T12:30:00Z</DateTimeUtc>`
Reserve sharing-	New	Reserve sharing-	`<Price_D_ReserveSharing>0</Price_D_ReserveSharing>`
mFRR-	New	mFRR-	`<Price_D_mFRR>25</Price_D_mFRR>`
aFRR-	New	aFRR-	`<Price_D_aFRR>23</Price_D_aFRR>`
aFRR+	New	aFRR+	`<Price_I_aFRR>12</Price_I_aFRR>`
mFRR+	New	mFRR+	`<Price_I_mFRR>100.0</Price_I_mFRR>`
Reserve Sharing+	New	Reserve Sharing+	`<Price_I_ReserveSharing>0</Price_I_ReserveSharing>`

Column Definitions & Calculations

Column	Description
Quarter	Start time of the corresponding quarter hour
Reserve sharing-	Price of available downward (export) capacity from emergency support contracts with neighboring transmission system operators
mFRR-	Price of available downward mFRR volumes in Belgium mFRR – equals the minimum marginal price per quarter hour for a product and the downward direction equals the minimum price of the Energy bids with an available volume for that product, for that quarter hour and for the downward direction: $Marginal\ price_{qh,product,down} = \min_i(Bid\ Price_{i,qh,product,down})$
aFRR-	Price of available downward aFRR volumes in Belgium **Before Picasso go-live**, the system performs an average price calculation for aFRR and are executed per quarter hour. $Maximum\ average\ price_{qh,down} = \frac{\sum_i(Bid\ Volume_{i,qh,down}\ .\ Bid\ Price_{i,qh,down})}{\sum_i Bid\ Volume_{i,qh,down}}$ **Post Picasso** **See mFRR- for calculation**
aFRR+	Price of available upward aFRR volumes in Belgium **Before Picasso go-live** The maximum average price per quarter hour **for aFRR** is calculated as follows: $Maximum\ average\ price_{qh,up} = \frac{\sum_i(Bid\ Volume_{i,qh,up}\ .\ Bid\ Price_{i,qh,up})}{\sum_i Bid\ Volume_{i,qh,aFRR,up}}$ **Post Picasso** **See mFRR+ for calculation**
mFRR+	Price of available upward mFRR volumes in Belgium

	The maximum marginal price per quarter hour for a product and the upward direction equals the maximum price of the Energy bids with an available volume for that product, for that quarter hour and for the upward direction: $$Marginal\ price_{qh,product,up} = \max_{i}(Bid\ Price_{i,qh,product,up})$$
Reserve Sharing+	Price of available upward (import) capacity from emergency support contracts with neighboring transmission system operators

XML & JSON Format

See 0 Available volumes in Belgium

Incremental & Decremental energy bids

Publication containing individual available and unavailable energy bids, their volume, prices, and rank in our merit order.

Location

Source	URL
15 Min Publication - Incremental	
15 min **Elia.be** (no change)	**N/A**
15 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods139/information/?sort=datetime**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods163/information/?sort=datetime**
15 min Historical OpenData (no change in URL) ⇨ Pre-MARI will be added in the title	**https://opendata.elia.be/explore/dataset/ods068/information/?sort=datetime**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods156/information/?sort=datetime**
15 min GridData (new)	**griddataacc.elia.be/eliabecontrols.acc/interface/availablecapacitymeritorder/getincrementcapacitymeritorder/2024-03-21/2024-03-23**
15 Min Publication - Decremental	
15 min **Elia.be** (no change)	**N/A**
15 min near real-time OpenData (removed)	**https://opendata.elia.be/explore/dataset/ods140/information/?sort=datetime**
15 min near real-time OpenData (new)	**https://opendata.elia.be/explore/dataset/ods164/information/?sort=datetime**
15 min Historical OpenData (no change in URL) Pre-MARI will be added in the title	**https://opendata.elia.be/explore/dataset/ods069/information/?sort=datetime**
15 min Historical Post-MARI OpenData (new)	**https://opendata.elia.be/explore/dataset/ods157/information/?sort=datetime**
15 min GridData (new)	**https:// griddata.elia.be/eliabecontrols.prod/interface/availablecapacitymeritorder/getdecrementcapacitymeritorder/2024-03-19/2024-03-20**

Column names in different sources

OpenData	Status	B2B XML Tag
Datetime	Unchanged	`<DateTimeUtc>2024-03-27T23:00:00Z</DateTimeUtc>`
Rank	New	`<Rank>24</Rank>`
Activation order	Unchanged	`<Order>1</Order>`
Reserve	Removed	
Product	Changed content	`<Reserve>aFRR</Reserve>`
Bid Volume	Removed	
Cumulative Volume	New	`<CumulativeVolume>25</CumulativeVolume>`
Bid Price	Unchanged	`<BidPrice>136.21</BidPrice>`
Minimum volume	Removed	
Start Price	Removed	
Bid+Start Price	Removed	
Availability	New	`<Availability>Unavailable</Availability>`

Column Definitions & Calculations

Column	Description
Datetime	Start time of the corresponding quarter hour
Rank	Rank of the reserve in the overall merit order for the given direction
Activation order	Order of activation of balancing products: (1) aFRR (2) mFRR (3) Reserve sharing
Product	Product of the bid: aFRR, mFRR or Reserve Sharing
Bid Volume	Volume of the bid
Cumulative Volume	Cumulative volume in the merit order for the quarter hour
Bid Price	Price of the bid
Availability	Availability status of a bid

XML & JSON Format

XML

```
<ArrayOfAvailableRegulationCapacityMeritOrderByQuarterHourDto
    xmlns:i="http://www.w3.org/2001/XMLSchema-instance"
    xmlns="http://schemas.datacontract.org/2004/07/Elia.EliaBeCon-
trols.WebApi.Interface.Dto.AvailableCapacityMeritOrder">
    <AvailableRegulationCapacityMeritOrderByQuarterHourDto>
```

```
        <Availability i:nil="true"/>
        <BidPrice>136.21</BidPrice>
        <BidStartPrice>136.21</BidStartPrice>
        <BidVolume>40.0</BidVolume>
        <CumulativeVolume i:nil="true"/>
        <DateTimeUtc>2024-03-27T23:00:00Z</DateTimeUtc>
        <MinumumVolume i:nil="true"/>
        <Order>1</Order>
        <Product>R2</Product>
        <Rank i:nil="true"/>
        <Reserve>aFRR</Reserve>
        <StartPrice i:nil="true"/>
    </AvailableRegulationCapacityMeritOrderByQuarterHourDto>
    <AvailableRegulationCapacityMeritOrderByQuarterHourDto>
        <Availability i:nil="true"/>
        <BidPrice>201.88</BidPrice>
        <BidStartPrice>201.88</BidStartPrice>
        <BidVolume>1.0</BidVolume>
        <CumulativeVolume i:nil="true"/>
        <DateTimeUtc>2024-03-27T23:00:00Z</DateTimeUtc>
        <MinumumVolume i:nil="true"/>
        <Order>1</Order>
        <Product>R2</Product>
        <Rank i:nil="true"/>
        <Reserve>aFRR</Reserve>
        <StartPrice i:nil="true"/>
    </AvailableRegulationCapacityMeritOrderByQuarterHourDto>
</ArrayOfAvailableRegulationCapacityMeritOrderByQuarterHourDto>
```

JSON

```
[
  {
    "dateTimeUtc": "2024-03-27T23:00:00Z",
    "rank": null,
    "order": 1,
    "reserve": "aFRR",
    "product": "R2",
    "bidVolume": 40,
    "cumulativeVolume": null,
    "bidPrice": 136.21,
    "minumumVolume": null,
```

```
    "availability": null,
    "startPrice": null,
    "bidStartPrice": 136.21
  },
  {
    "dateTimeUtc": "2024-03-27T23:00:00Z",
    "rank": null,
    "order": 1,
    "reserve": "aFRR",
    "product": "R2",
    "bidVolume": 1,
    "cumulativeVolume": null,
    "bidPrice": 201.88,
    "minumumVolume": null,
    "availability": null,
    "startPrice": null,
    "bidStartPrice": 201.88
  }

]
```