ENTSO-E

Electricity Balancing Cost Report 2025

6 June 2025

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ENTSO-E Mission Statement

Who we are

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the **association for the cooperation of the European transmission system operators (TSOs)**. The **40 member TSOs**, representing 36 countries, are responsible for the **secure and coordinated operation** of Europe's electricity system, the largest interconnected electrical grid in the world. In addition to its core, historical role in technical cooperation, ENTSO-E is also the common voice of TSOs.

ENTSO-E **brings together the unique expertise of TSOs for the benefit of European citizens** by keeping the lights on, enabling the energy transition, and promoting the completion and optimal functioning of the internal electricity market, including via the fulfilment of the mandates given to ENTSO-E based on EU legislation.

Our mission

ENTSO-E and its members, as the European TSO community, fulfil a common mission: Ensuring the **security of the interconnected power system in all time frames at pan-European level** and the **optimal functioning and development of the European interconnected electricity markets**, while enabling the integration of electricity generated from renewable energy sources and of emerging technologies.

Our vision

ENTSO-E plays a central role in enabling Europe to become the first **climate-neutral continent by 2050** by creating a system that is secure, sustainable and affordable, and that integrates the expected amount of renewable energy, thereby offering an essential contribution to the European Green Deal. This endeavour requires **sector integration** and close cooperation among all actors.

Europe is moving towards a sustainable, digitalised, integrated and electrified energy system with a combination of centralised and distributed resources.

ENTSO-E acts to ensure that this energy system **keeps consumers at its centre** and is operated and developed with **climate objectives** and **social welfare** in mind.

ENTSO-E is committed to using its unique expertise and system-wide view – supported by a responsibility to maintain the system's security – to deliver a comprehensive roadmap of how a climate-neutral Europe looks.

Our values

ENTSO-E acts in **solidarity** as a community of TSOs united by a shared **responsibility**.

As the professional association of independent and neutral regulated entities acting under a clear legal mandate, ENTSO-E serves the interests of society by **optimising social welfare** in its dimensions of safety, economy, environment and performance.

ENTSO-E is committed to working with the highest technical rigour as well as developing sustainable and **innovative responses to prepare for the future** and overcoming the challenges of keeping the power system secure in a climate-neutral Europe. In all its activities, ENTSO-E acts with **transparency** and in a trustworthy dialogue with legislative and regulatory decision makers and stakeholders.

Our contributions

ENTSO-E supports the cooperation among its members at European and regional levels. Over the past decades, TSOs have undertaken initiatives to increase their cooperation in network planning, operation and market integration, thereby successfully contributing to meeting EU climate and energy targets.

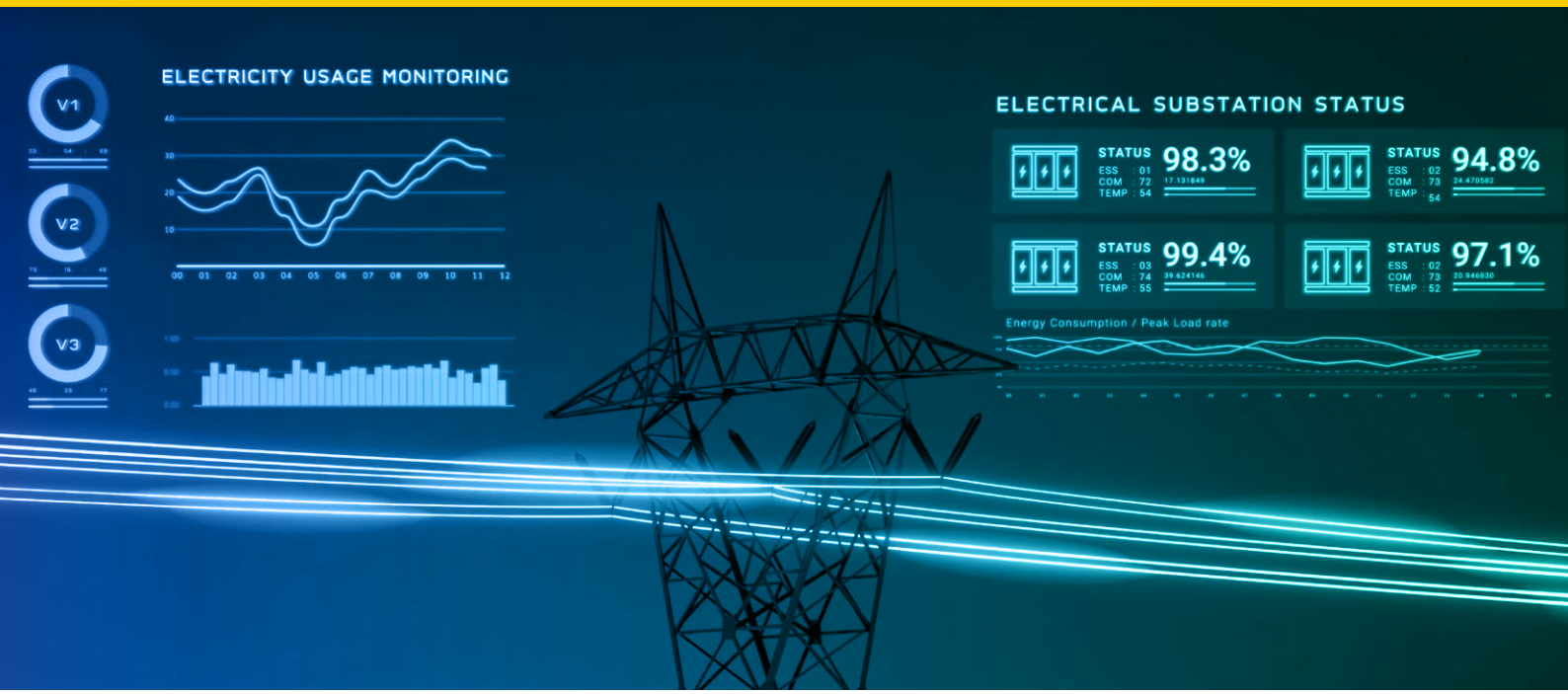
To carry out its **legally mandated tasks**, ENTSO-E's key responsibilities include the following:

- Development and implementation of standards, Network Codes, platforms and tools to ensure secure system and market operation as well as integration of renewable energy;
- Assessment of the adequacy of the system in different timeframes;
- Coordination of the planning and development of infrastructures at the European level (**Ten-Year Network Development Plans, TYNDPs**);
- Coordination of research, development and innovation activities of TSOs;
- Development of platforms to enable the transparent sharing of data with market participants.

ENTSO-E supports its members in the **implementation and monitoring** of the agreed common rules.

ENTSO-E is the common voice of European TSOs and provides expert contributions and a constructive view to energy debates to support policymakers in making informed decisions.

Table of Contents



1 Introduction

All transmission system operators (TSOs) report to the regulatory authorities on the costs of establishing, amending and operating the European balancing energy platforms for the exchange of balancing energy from frequency restoration reserves and replacement reserves and for the imbalance netting process ('EB Cost Report'), in accordance with Article 23(1) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing ('EB Regulation'). These European balancing energy platforms are the RR-Platform, the mFRR-Platform, the aFRR-Platform and the IN-Platform, in accordance with Articles 19–22 of the EB Regulation.

This report will cover the detailed reporting of the respective year 2024 while keeping an overview of cumulative costs since the previous reports (i.e., 2018 – 2023).

Costs directly related to each European balancing energy platform shall be clearly and separately identified and auditable.

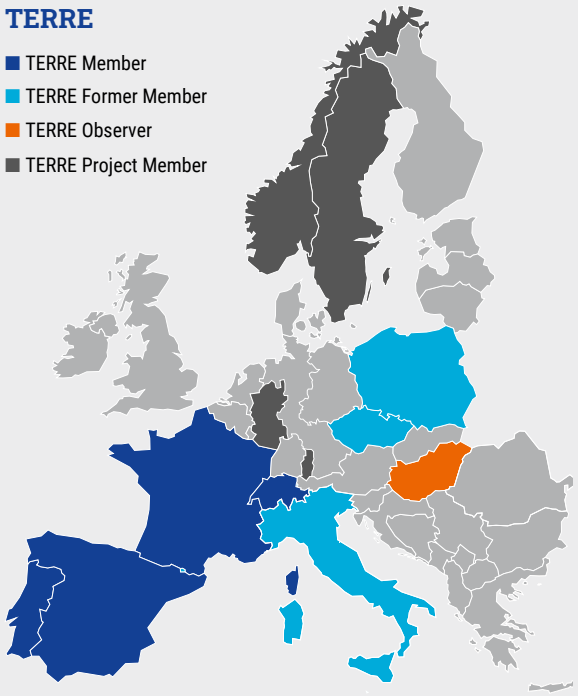
ENTSO-E has endorsed four implementation projects to establish the European balancing energy platforms pursuant to the EB Regulation.

The main targets of the projects are:

- To design, implement and operate the European balancing energy platforms in compliance with the relevant regulation, including the Electricity Regulation, the EB Regulation, the System Operation Regulation ('SO Regulation') and the Capacity Allocation and Congestion Management Regulation ('CACM Regulation'), and methodologies pursuant to those regulations, including the implementation frameworks for the European balancing energy platforms;
- To enhance the efficiency of balancing in Europe and integrate balancing markets, promoting the possibilities for exchanging replacement reserves (RR), frequency restoration reserves with manual activation (mFRR) and frequency restoration reserves with automatic activation (aFRR) balancing energy, or for performing the imbalance netting process, while contributing to operational security.

1.1 Description of the RR-Platform: the TERRE project

The Trans European Replacement Reserves Exchange (TERRE) project is the European implementation project for exchanging Replacement Reserves in line with **EB Regulation (Article 19)**. This fundamental regulation provides the technical and operational framework and defines the market rules to govern the functioning of balancing markets. It also sets out rules for the procurement of balancing capacity and for the allocation of cross-zonal transmission capacity for cross-border trades, for the activation of balancing energy and the financial settlement of balance responsible parties. Due to a particular context detailed in ENTSO-E Market Report 2025, operations in TERRE will be stopped at the end of 2025 for the latest. The project will be closed in Q1 2026.



The TERRE Member TSOs (countries) are:

- Swissgrid (CH)
- RE (ES)
- RTE (FR)
- REN (PT)

The TERRE Former Member TSOs (countries) are:

- ČEPS (CZ)
- Terna (IT)
- PSE (PL)

The Former Member status was created to allow these TSOs to remain involved in the project for the decommissioning of the platform (as historical actors).

The following TSO (country) is an observer:
MAVIR ZRt. (HU); ENTSO-E is also an observer.

In addition, 3 TSOs are TERRE project members:
Amprion (DE), Statnett (NO) and Svenska kraftnät (SE).
The term 'project member' is defined in the **EB Cost Report 2024**.

Other relevant TERRE information

The TERRE Cooperation Agreement is the agreement between all TERRE member TSOs and entered into force on 18 October 2019. In terms of costs, as specified in the implementation framework for the RR-Platform ('RRIF'), the costs associated with the establishing, amending and operation of the RR-Platform are broken down into:

- Common costs resulting from RR-Platform development, costs required for external support to the project and the Project Management Office (PMO) costs. These costs are required for establishing, amending and operating the RR-platform.
- The historical costs will include all the common costs incurred from January 2017, excluding the PMO costs.

The most important events involving TERRE during 2024 were:

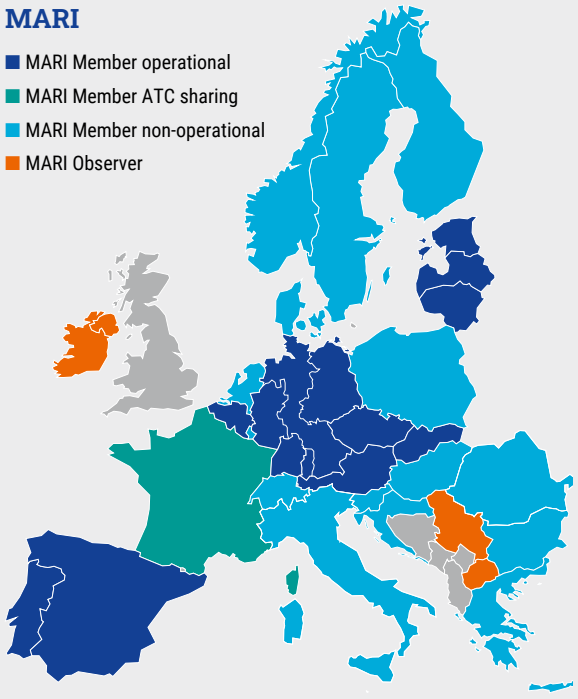
Because of the context of the upcoming end of the TERRE project not any major implementation was conducted in the platform. Indeed, as the platform will be not used after 31 December 2025, TERRE TSOs decided to reduce their investments for new functionalities in the platform. Nevertheless, operations in 2024 were stable, and TERRE TSOs worked on the following topics:

- **KPIs reports:** since Q1 2024, all Key Performance Indicators reports have been published on the TERRE webpage on the **ENTSO-E website**.
- **End of the TERRE project:** as mentioned above, TERRE TSOs focused on conducting a smooth and gradual end of the TERRE project as well as anticipating all consequences of it.
- **CMM implementation for TERRE:** the TERRE platform is connected to CMM, and TERRE TSOs performed tests to ensure the stability of operation at each change of the CMM version.
- **TERRE CA amendment:** TERRE TSOs approved and signed an amendment of TERRE Cooperation Agreement to legally secure the end of the project.
- **Stakeholder Workshop:** the annual stakeholder workshop, organised together with PICASSO, MARI and IGCC took place on 11 December 2024. Stakeholders were provided with information about the project planning, the context related to the end of the TERRE project, as well as giving explanations on the market results.

Until the end of the project, no important change may be implemented in the platform. TERRE TSOs will ensure the stability of the platform and its operations.

1.2 Description of the mFRR-Platform: the MARI project

The Manually Activated Reserves Initiative ('MARI') is the implementation project endorsed by all TSOs through ENTSO-E's Market Committee on 7 September 2017 to establish the European platform for the exchange of balancing energy from frequency restoration reserves with manual activation, i. e. the 'mFRR-Platform' pursuant to Article 20 of the EB Regulation. MARI went in operation in 2022 by starting a dry-run (connection of ČEPS only) on 18 July 2022 and achieving market go-live on 5 October 2022 (connection of ČEPS and German TSOs). Since then, several TSOs successfully accessed MARI.



All MARI member TSOs (countries) are:

- APG (AT)
- Elia (BE)
- ESO (BG)
- Swissgrid (CH)
- ČEPS (CZ)
- 50Hertz, TenneT DE, Amprion, TransnetBW (DE)
- Energinet (DK)
- Elering (EE)
- RE (ES)
- Fingrid (FI)
- RTE (FR)
- IPTO (GR)
- HOPS (HR)
- MAVIR ZRt. (HU)
- Terna (IT)
- Litgrid (LT)
- Creos Luxembourg (LU)
- AST (LV)
- TenneT NL (NL)
- Statnett (NO)
- PSE S.A. (PL)
- REN (PT)
- Transelectrica (RO)
- SvK (SE)
- ELES (SI)
- SEPS (SK)

In addition, the following TSOs (countries) are observers: Eirgrid (IE), MEPSO (MKD), SONI (NI) and EMS (SRB). ENTSO-E is also an observer.

Other relevant information of MARI

As MARI started before entry into force of the EB Regulation, the project initially applied a Memorandum of Understanding (MoU) on a contractual basis. MARI's second MoU replaced the first MoU (signed 5 April 2017) and was applicable from 11 September 2018 (the last signature date of the Parties) until the MoU was replaced by the platform's cooperation agreements, which came into force on 1 July 2020.

In terms of costs, as specified in the implementation framework for the mFRR-Platform ('mFRRIF'):

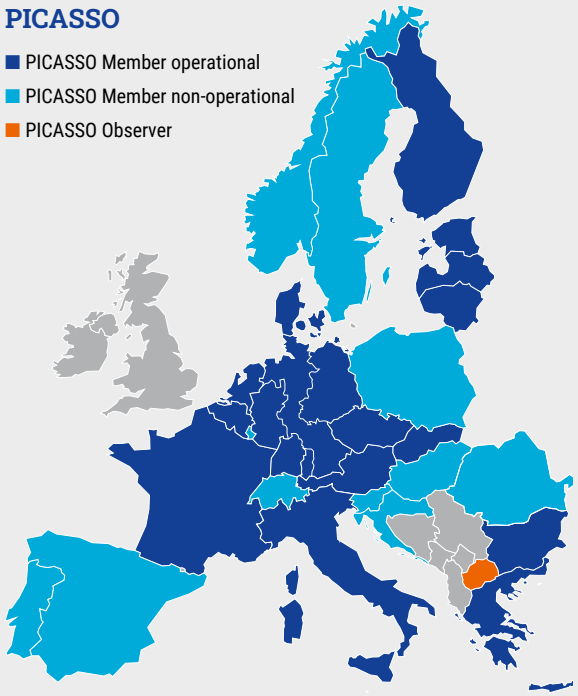
- Each member TSO shall bear its own national costs and is solely responsible (i.e., no joint and several liability) for the due payment of all the costs related to the technical infrastructure necessary for the successful usage of the mFRR-Platform.
- The cost sharing principle may apply to costs incurred since 1 January 2018 and shall apply to costs incurred after the approval of the mFRRIF. Any costs incurred before 1 January 2018 shall not be considered as historical costs.
- The cost sharing key is for $1/8^{th}$ attributed to membership, $5/8^{th}$ to consumption and $2/8^{th}$ to participation in the project.
- In the event that several TSOs are operating in a Member State (as is the case in Germany), the Member State's share of the costs shall be distributed among those TSOs proportionally to the consumption in the TSOs control areas.
- Per January 2023, the Cost Sharing Key for MARI common costs for establishment and amendment was adjusted to reflect the latest available consumption data.
- The 2024 Cost Sharing Division for recurring costs was determined following the approval of the October 2024 Accession Roadmap, in line with the Agreements. The recurring cost sharing keys are calculated in line with the Agreements and EB Regulation.

The most important events involving MARI during 2024 were:

- Design, development, testing of three (versions 6.1 to 6.3) and deployment of two minor mFRR platform releases with improved and new functionalities (versions 6.1 & 6.2).
- Technical upgrade of libraries, databases and software to improve stability and performance of the system core.
- Delivery and deployment of a production-like environment allowing testing of hot-fixes.
- The ninth, tenth, eleventh, and twelfth versions of the accession roadmap have been published on the ENTSO-E website.
- During the fourth quarter, several TSOs joined the mFRR platform. In October, the Baltic TSOs Elering, AST, and Litgrid joined on 2 October 2024, 4 October 2024, and 8 October 2024, respectively. November saw the Portuguese TSO REN join on 27 November 2024. In December, the Slovakian TSO SEPS joined on 3 December 2024, followed by the Spanish TSO RE on 10 December 2024.
- Running an EU tender identifying the suppliers to support the testing of the further developed new versions of the mFRR platform from mid-2024 onwards.
- Design and development of one (version 3/3.1) and testing and deployment of two (version 2 & 3/3.1) new versions of the CM IT Solution.
- Stakeholder workshop together with PICASSO, TERRE and IGCC was organised on 11 December 2024, informing stakeholders of project planning and progress, as well as giving detailed explanations of the business process and market results.

1.3 Description of the aFRR-Platform: the PICASSO project

The Platform for the International Coordination of Automated Frequency Restoration and Stable System Operation ('PICASSO') is the implementation project endorsed by all TSOs through ENTSO-E's Market Committee on 9 November 2017 to establish the European platform for the exchange of balancing energy from aFRR, i.e. the 'aFRR-Platform' pursuant to Article 21 of the EB Regulation. PICASSO went in operation in 2022 with the first connection of ČEPS on 1 June 2022. German and Austrian TSOs connected on 22 June 2022 resulting in first energy exchanged. Since then, several TSOs successfully accessed PICASSO.



All PICASSO member TSOs (countries) are:

- APG (AT)
- Elia (BE)
- ESO (BG)
- Swissgrid (CH)
- ČEPS (CZ)
- 50Hertz, TenneT DE, Amprion, TransnetBW (DE)
- Energinet (DK)
- Elering (EE)
- RE (ES)
- Fingrid (FI)
- RTE (FR)
- IPTO (GR)
- HOPS (HR)
- MAVIR ZRt. (HU)
- Terna (IT)
- Litgrid (LT)
- Creos Luxembourg (LU)
- AST (LV)
- TenneT NL (NL)
- Statnett (NO)
- PSE (PL)
- REN (PT)
- Transelectrica (RO)
- SvK (SE)
- ELES (SI)
- SEPS (SK)

In addition, the following TSO (country) is an observer: MEPSO (MKD). ENTSO-E is also an observer.

Other relevant information of PICASSO

As PICASSO started before entry into force of the EB Regulation, the project initially applied a Memorandum of Understanding (MoU) on a contractual basis. Anticipating the entry into force of the EB Regulation, PICASSO's first MoU was signed on 24 July 2017. On 1 October 2018, a second MoU was signed, which was applicable until it was replaced by the platform's framework for cooperation agreements, which came into force on the 1 July 2020 and consists of a principle agreement common to all European balancing energy platforms, an operational agreement and common service provider agreements.

In terms of costs, as specified in the implementation framework for the aFRR-Platform ('aFRRIF'):

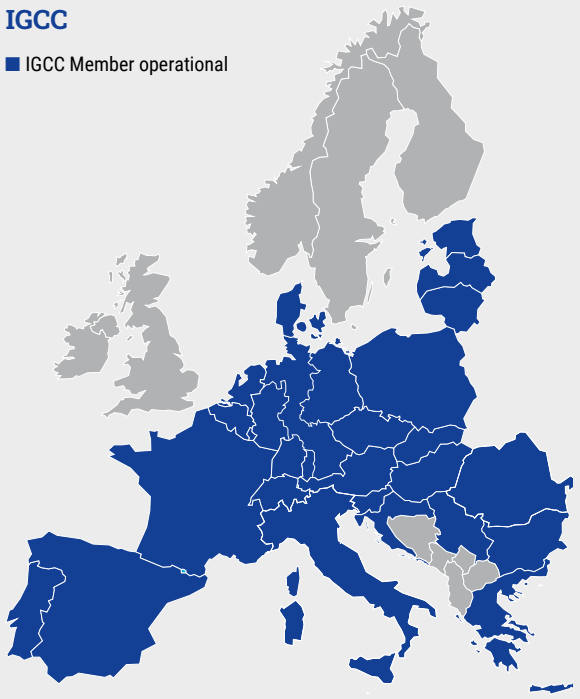
- Each member TSO shall bear its own national costs and is solely responsible (i.e., no joint and several liability) for the due payment of all the costs related to the technical infrastructure necessary for the successful usage of the aFRR-Platform.
- The cost sharing principle may apply to costs incurred since 1 January 2018, and shall apply to costs incurred after the approval of the aFRRIF. Any costs incurred before 1 January 2018 shall not be considered as historical costs.
- The cost sharing key is for 1/8th attributed to membership, 5/8th to consumption and 2/8th to participation in the project.
- In the event that several TSOs are operating in a Member State (as is the case in Germany), the Member State's share of the costs shall be distributed among those TSOs proportionally to the consumption in the TSOs control areas.
- Per January 2023, the Cost Sharing Key for PICASSO common costs for establishment and amendment was adjusted to reflect the latest consumption data.
- The recurring cost-sharing keys are calculated in line with the Agreements and EB Regulation .

The most important events for PICASSO during 2024 were as follows:

- The Danish TSO Energinet accessed the PICASSO platform on 11 October 2024, followed by the Dutch TSO TenneT NL on 17 October 2024, and successfully exchanged aFRR via PICASSO.
- The Slovakian TSO SEPS accessed the PICASSO platform on 05 November 2024, followed by the Belgium TSO Elia on 27 November 2024, and successfully exchanged aFRR via PICASSO.
- Terna suspended its participation to the PICASSO Platform on 15 March 2024 in relation to the resolution n° 60/2024/R/EEL of the Italian NRA. Terna remains part of the project and the platform is ready for a renewed operational participation of Terna.
- The ninth, tenth, eleventh, and twelfth versions of the accession roadmap have been published on the ENTSO-E website.
- The PICASSO project conducted enhancements in operational aspects, including updates to the Operational Handbook, to the Pricing & Settlement Implementation Document, and to the Technical Implementation Document
- Development of the IT-implementation of the ACER decisions regarding CBMP calculation and Elastic demand successfully addressed high prices in PICASSO. Testing with new versions of the CM IT Solution were conducted throughout the year.
- Stakeholder workshop together with MARI, TERRE and IGCC has been organised on 11 December 2024, informing stakeholders of project planning and progress, as well as giving detailed explanations of the business process and market results.

1.4 Description of the IN-Platform: the IGCC project

The International Grid Control Cooperation ('IGCC') is the implementation project endorsed by all TSOs on 11 February 2016 to establish the European platform for the imbalance netting process, i.e. the 'IN-Platform' pursuant to Article 22 of the EB Regulation.



All IGCC member TSOs (countries) are:

- APG (AT)
- Elia (BE)
- ESO (BG)
- Swissgrid (CH)
- ČEPS (CZ)
- 50Hertz, TenneT DE, Amprion, TransnetBW (DE)
- Energinet (DK)
- Elering (EE)
- RE (ES)
- RTE (FR)
- IPTO (GR)
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- PSE (PL)
- REN (PT)
- Transelectrica (RO)
- ELES (SI)
- SEPS (SK)
- EMS (SRB)

In addition, ENTSO-E is also an observer.

Other relevant information of IGCC

- The IGCC Cooperation Agreement is the agreement between all IGCC member TSOs and entered into force on 19 January 2016. A fifth amendment of the IGCC Cooperation Agreement was made on 11 December 2019, aiming to align the agreement with existing EU Regulation.
- In terms of costs, as specified in the implementation framework for the IN-Platform ('INIF'):
- Each member TSO shall bear its own national costs and is solely responsible (i.e.: no joint and several liability) for the due payment of all the costs related to the technical infrastructure necessary for the successful usage of the IN-Platform.
- The cost sharing principle shall apply to costs incurred after the approval of the INIF. All TSOs agree not to share any costs incurred before the approval of the INIF.

The most important events involving IGCC during 2024 were:

- The growing number of participating TSOs enabled to reach a record of more than x13.9 TWh of avoided aFRR activation in 2024. The financial savings reached more than 8 Mio€ in 2024.

1.5 Summary of the costs

	Category		RR-Platform (All TSOs)	mFRR-Platform (All TSOs)	aFRR-Platform (All TSOs)	IN-Platform (All TSOs)	CM IT Solution (All TSOs)	Total [K €]
2018	Establishing & amending	**[K €]**	2,790	315	166	0	0	**3,271**
	Operating	**[K €]**	0	0	0	0	0	**0**
2019	Establishing & amending	**[K €]**	5,178	565	317	0	0	**6,060**
	Operating	**[K €]**	0	0	0	0	0	**0**
2020	Establishing & amending	**[K €]**	1,737	1,958	480	35	0	**4,210**
	Operating	**[K €]**	1,710	0	0	0	0	**1,710**
2021	Establishing & amending	**[K €]**	900	8,347	653	45	30	**9,975**
	Operating	**[K €]**	1,586	0	0	0	0	**1,586**
2022	Establishing & amending	**[K €]**	748	6,729*	4,234*	123	8	**11,842**
	Operating	**[K €]**	1,586	115*	491*	41	0	**2,233**
2023	Establishing & amending	**[K €]**	864	5,722*	855*	0	2,496*	**9,937**
	Operating	**[K €]**	1,549	1,427*	1,082*	61	25*	**4,144**
2024	Establishing & amending	**[K €]**	211	6,660	1,775*	0	1,353*	**9,999**
	Operating	**[K €]**	1,529	506**	626**	118	228**	**3,007**
2025 forecast	Establishing & amending	**[K €]**	252	7,653*	722*	60	2,759*	**11,446**
	Operating	**[K €]**	1,742	2,126**	2,041*	109	821**	**6,839**

* These numbers cover both, common and regional costs and are thus reported in respectively chapter 2 and 3.

** These are regional costs only.

2 Chapter A: Common costs resulting from the coordinated activities of all TSOs participating in the European balancing energy platforms

All the common costs indicated below are to be shared between TSOs in accordance with the rules specified in the respective implementation frameworks.

2.1 Actual costs of 2024

The following table provides an overview of actual common costs in 2024:

Actual costs 2024			Costs of establishing [€]		Costs of operating [€]
RR-Platform	All TERRE TSOs' costs	1.a	211,412.70	1.b	1,529,331.80
mFRR-Platform	All MARI TSOs' costs	2.a	5,205,124.14	2.b	0.00
aFRR-Platform	All PICASSO TSOs' costs	3.a	604,600.78	3.b	0.00
IN-Platform	All IGCC TSOs' costs	4.a	none	4.b	117,811.00
CM IT Solution	All MARI TSOs' costs	5.a	869,196.21	5.b	0.00

2.2 Costs of establishing and amending the European balancing energy platforms in 2024

2.2.1 RR-Platform

The actual costs for establishing and amending the RR-Platform in 2024 were:

TERRE	2024 [€]
Costs for establishing	**211,412.70**
IT Development	**6,703.00**
Optimisation module	0.00
Data management	6,703.00
Hosting	0.00
IT Monitoring	0.00
Finance service	0.00
Testing	0.00
Central project team	**204,709.70**
PMO	134,068.30
Business analyst	19,800.00
IT adviser	50,841.50
Other consultancy	0.00

Clarifications:

- The 'Optimisation module' covers the support from the external provider for the design and the development of the AOF of the RR Platform.
- The 'Data Management' covers the support from the external provider for the design and the development of the data management module of the RR Platform.
- The 'Testing' covers the support from PSE for the UAT of the RR platform.
- The 'PMO' considers all PMO support for all groups.
- The 'Business analyst' is an external business analyst engaged to collect the RR requirements and support functional design of the RR IT solution.
- The 'IT adviser' is an external IT project manager engaged to coordinate the different providers and TSOs for the design, development, amendment and testing of the RR IT solution.

TERRE actual costs 2024 per TSO

Country	Participants	Member State	Consumption (Nrg_105a) [GWh]	Amount per TSO Costs for establishing and amending [€]	Amount per TSO Costs for operating [€]
Czech Republic	ČEPS	1	61,304	19,720.00	146,530.00
France	RTE	1	442,322	60,158.00	463,179.00
Italy	Terna	1	300,887	45,147.00	345,638.00
Poland	PSE	1	157,314	29,910.00	0.00
Portugal	REN	1	48,117	18,320.00	135,571.00
Spain	RE	1	235,025	38,157.00	290,903.00
Switzerland	Swissgrid	1	62,483	17,640.00*	147,510.00
Hungary	MAVIR ZRt.	0	43,387	0.00	0.00
TOTAL		**7**	**1,350,839**	**211,413.00**	**1,529,332.00**

* The CAPEX share of Swissgrid is blocked in a bank account, to reflect the status on Swissgrid participation as provided for in EB Regulation Art. 1(6) and 1(7). As the TERRE project will be ended and Swissgrid benefited from the platform at same level af other TSOs, Swissgrid has accepted to release the amount of their blocked bank account after the end of the project. For now, their CAPEX costs are still stored in their blocked bank account. So, the amount of their CAPEX costs is not included in the TOTAL, as other TSOs are still covering these costs.

2.2.2 mFRR-Platform

The actual costs for establishing the mFRR-Platform in 2024 were:

MARI	2024 [€]
Total costs for establishment and amending	**5,205,124.14**
General project costs (i. e., external PMO, conveners, experts, legal counsel)	1,059,335.48
mFRR platform IT development	1,132,519.20
mFRR platform hosting and monitoring (amendment & establishment part like test environments)	1,840,566.67
Third party services (i. e., testing support)	1,172,702.79

Clarifications:

› The PMO support considers also PMO support for the joint MARI – PICASSO Legal WG, the joint Project Management Team, ad-hoc cross-platform TFs, the Balancing Platforms Steering Committee's joint sessions, and the PICASSO Budget Management.

MARI actual costs 2024 per TSO				
Country	**Participants**	**Member State**	**Consumption 2021 [GWh]**	**Amount per TSO [€]**
Austria	APG	1	66,861	156,153,72
Belgium	Elia	1	83,069	175,933,20
Bulgaria	ESO	1	32,089	113,471,71
Croatia	HOPS	1	16,854	94,733,26
Czech Republic	ČEPS	1	61,304	149,387,06
Denmark	Energinet	1	33,602	115,553,76
Estonia	Elering	1	8,135	84,323,01
Finland	Fingrid	1	83,301	176,453,71
France	RTE	1	442,322	616,286,70
Germany	Amprion	0.36311	183,434	282,117,73
	TenneT DE	0.30506	154,109	245,161,35
	TransnetBW	0.13055	65,951	132,210,15
	50Hertz	0.20128	101,682	178,015,25
Greece	IPTO	1	51,812	136,374,25
Hungary	MAVIR ZRt.	1	43,387	127,525,54
Italy	Terna	1	300,887	442,956,06
Latvia	AST	1	6,930	82,761,47
Lithuania	Litgrid	1	11,954	89,007,62
Luxembourg	Creos Luxembourg	1	6,393	33,833,31
Netherlands	TenneT NL	1	112,349	211,848,55
Norway	Statnett	1	128,443	231,628,02
Poland	PSE	1	157,314	267,022,87
Portugal	REN	1	48,117	133,251,18
Romania	Transelectrica	1	49,623	134,812,72
Slovak Republic	SEPS	1	26,457	106,705,04
Slovenia	ELES	1	13,550	90,569,16
Spain	RE	1	235,025	362,276,64
Sweden	Svenska kraftnät	1	131,028	234,751,10
Switzerland	Swissgrid	1	(62,483)	146,263,99
TOTAL		**26**	**2,654,723** (2,717,206*)	**5,205,124.14**

* Amount including Swissgrid

› The share of common costs for Swissgrid is transferred to the blocked bank account for costs occurring from July 2020. Transnet BW maintains Power of Attorney over this blocked bank account. If Swissgrid is not allowed by the European Commission to participate, in accordance with article 1 of EB Regulation, then Swissgrid's financial contribution deposited in the blocked bank account will be released to the benefit of Swissgrid.

2.2.3 aFRR-Platform

The actual costs for establishing the aFRR-Platform in 2024 were:

PICASSO	2024 [€]
Total cost for establishment and amending	**604,600.78**
General project costs (i. e., external PMO, senior project lead, external convenors)	384,321.09
aFRR platform IT development	220,279.69

PICASSO actual costs 2024 per TSO

Country	Participants	Member State	Consumption 2021 [GWh]	Amount per TSO [€]	Historical costs resettlement** [€]
Austria	APG	1	66,861	18,138.02	-8,622.70
Belgium	Elia	1	83,069	20,435.51	-8,826.27
Bulgaria	ESO	1	32,089	13,180.30	-8,263.08
Croatia	HOPS	1	16,854	11,003.73	-8,131.37
Czech Republic	ČEPS	1	61,304	17,352.04	-8,579.62
Denmark	Energinet	1	33,602	13,422.14	-8,276.25
Estonia	Elering	1	8,135	9,794.53	69,985.76
Finland	Fingrid	1	83,301	20,495.97	-8,779.43
France	RTE	1	442,322	71,584.73	-12,467.16
Germany	Amprion	0.36311	183,434	32,769.36	-7,985.20
	TenneT DE	0.30506	154,109	28,476.70	-7,473.70
	TransnetBW	0.13055	65,951	15,356.86	-6,066.64
	50Hertz	0.20128	101,682	20,677.35	-6,670.93
Greece	IPTO	1	51,812	15,840.54	-8,455.22
Hungary	MAVIR ZRt.	1	43,387	14,812.72	-8,354.10
Italy	Terna	1	300,887	51,451.53	-11,020.90
Latvia	AST	1	6,930	9,613.15	68,489.29
Lithuania	Litgrid	1	11,954	10,338.67	73,213.74
Luxembourg	Creos Luxembourg	1	6,393	3,929.91	-3,015.28
Netherlands	TenneT NL	1	112,349	24,607.25	-9,093.70
Norway	Statnett	1	128,443	26,904.73	-9,233.72
Poland	PSE	1	157,314	31,016.02	-9,477.46
Portugal	REN	1	48,117	15,477.78	-8,424.14
Romania	Transelectrica	1	49,623	15,659.16	-8,471.19
Slovak Republic	SEPS	1	26,457	12,394.32	-8,217.77
Slovenia	ELES	1	13,550	10,520.05	-8,106.43
Spain	RE	1	235,025	42,080.21	-10,402.97
Sweden	Svenska Kraftnät	1	131,028	27,267.50	-9,273.57
Switzerland	Swissgrid	1	62,483	16,989.28	-7,970.70
TOTAL		**26**	**2,654,723** (2,717,206*)	**604,600.78**	

* Amount including Swissgrid

** During 2024 the historical cost resettlement for AST, Elering and Litgrid took place. Negative numbers means that TSOs were credited these amounts.

› The share of common costs for Swissgrid is transferred to the blocked bank account for costs occurring from July 2020. Transnet BW maintains Power of Attorney over this blocked bank account. If Swissgrid is not allowed by the European Commission, in accordance with article 1 of EB Regulation, to participate then Swissgrid's financial contribution, deposited in the blocked bank account, will be released to the benefit of Swissgrid.

2.2.4 IN-Platform

The costs for establishing in 2024 only relate to the costs for PMO support.

IGCC	2024 [€]
Costs for establishing	**0**
PMO support	none

Clarifications:

› The 'PMO support' for the IGCC only bodies was taken over by a TSO. For common groups with the PICASSO bodies, the PMO services are provided by the PICASSO PMO. It is performed by external consultants.

2.2.5 CM IT Solution

The actual costs for establishing and amending the CM IT Solution in 2024 were:

CM IT Solution	2024 [€]
Total costs for establishment and amending	869,196.21
General project costs (i. e., PMO, external experts, coordinators)	150,345.01
CM IT solution IT development	362,100.00
CM IT solution hosting and monitoring (establishment part)	356,751.20

CM IT Solution actual costs 2024 per TSO

Country	Participants	Member State	Consumption 2021 [GWh]	Amount per TSO [€]	Historical costs resettlement* [€]
Austria	APG	1	66,861	24,772.09	-1,458.58
Belgium	Elia	1	83,069	27,901.20	-1,699.42
Bulgaria	ESO	1	32,089	17,818.52	-1,455.28
Croatia	HOPS	1	16,854	14,863.26	-1,214.98
Czech Republic	ČEPS	1	61,304	23,642.14	-1,458.18
Denmark	Energinet	1	33,602	18,166.20	-1,455.48
Estonia	Elering	1	8,135	13,124.86	-1,214.17
Finland	Fingrid	1	83,301	27,988.12	-1,699.34
France	RTE	1	442,322	99,001.45	-3,885.37
Germany	Amprion	0.36311	183,434	45,198.20	-2,183.31
	TenneT DE	0.30506	154,109	39,200.75	-1,702.09
	TransnetBW	0.13055	65,951	21,034.55	-1,214.12
	50Hertz	0.20128	101,682	28,422.72	-1,457.15
Greece	IPTO	1	51,812	21,469.15	-1,696.55
Hungary	MAVIR ZRt.	1	43,387	20,078.43	-1,456.16
Italy	Terna	1	300,887	71,013.33	-2,914.57
Latvia	AST	1	6,930	12,864.10	-1,214.09
Lithuania	Litgrid	1	11,954	13,907.14	-1,214.44
Luxembourg	Creos Luxembourg	1	6,393	5,302.10	-485.38
Netherlands	TenneT NL	1	112,349	33,724.81	-1,940.82
Norway	Statnett	1	128,443	36,940.84	-1,941.70
Poland	PSE	1	157,314	42,590.61	-2,182.70
Portugal	REN	1	48,117	21,034.55	-1,457.01
Romania	Transelectrica	1	49,623	21,295.31	-1,695.74
Serbia	EMS	1	30,570	17,557.76	49,037.92
Slovak Republic	SEPS	1	26,457	16,775.49	-1,215.94
Slovenia	ELES	1	13,550	14,167.90	-1,453.68
Spain	RE	1	235,025	57,975.39	-2,670.29
Sweden	Svenska kraftnät	1	131,028	37,462.36	-1,942.84
Switzerland	Swissgrid	1	62,483	23,902.90	-1,458.55
TOTAL		**27**	**2,747,755**	**869,196.21**	

* During 2024 the CMM historical cost resettlement for EMS took place. Negative numbers means that TSOs were credited these amounts.

2.3 Costs of operating the European balancing energy platforms in 2024

2.3.1 RR-Platform

The RR-Platform entered in operation on 6 January 2020. Costs of operating the TERRE platform in 2024 were:

TERRE	2024 [€]
Operational costs	**1,529,331.80**
Optimisation module	326,761.00
Data management	277,801.00
Hosting	615,244.00
IT Monitoring	281,226.00
Financial service	28,299.80
Testing	0.00

2.3.2 mFRR-Platform

Operational costs will only become common costs for operations once all TSOs have accessed the platform. For that reason, there were no common costs for operations in 2024.

2.3.3 aFRR-Platform

Operational costs will only become common costs for operations once all TSOs have accessed the platform. For that reason, there were no common costs for operations in 2024.

2.3.4 IN-Platform

The operation of the IN-Platform is covered by the normal operations of the Host TSO (TransnetBW) for operating their system, maximising the efficiencies of using the infrastructure and personnel of an existing TSO and thus minimising costs for all TSOs, including the Host TSO. Thus, no operational costs were incurred in 2024, except JAO invoicing services fees which reflect the invoicing performed by JAO since June 2024.

IGCC	2024 [€]
Operational costs	**117.811.00**
JAO invoicing – Service fees	117,811.00

2.3.5 CM IT solution

Operational costs will only become common costs for operations once all TSOs have accessed the CM IT solution. For that reason, there were no common cost for operations in 2024.

2.4 Cost forecast for 2025

The following table provides an overview of total cost forecasts for 2025:

Cost forecast 2025		Budget for amending [€]		Budget for operating [€]	
RR-Platform	All TERRE TSOs' costs	1.e	251,740.00	1.f	1,742,326.50
mFRR-Platform	All MARI TSOs' costs	2.e	7,653,067	2.f	0.00*
aFRR-Platform	All PICASSO TSOs' costs	3.e	721,800	3.f	0.00*
IN-Platform	All IGCC TSOs' costs	4.e		4.f	108,944.00
CM IT Solution	All MARI TSOs' costs	5.e	2,759,051	5.f	0.00*

* Operational Costs are expected to remain regional costs for operations until at least end 2026.

2.5 Cost forecast for establishing and amending the European balancing energy platforms in 2025

2.5.1 RR-Platform

The RR-Platform became operational on 6 January 2020. The project approved a budget of € 251,740.00 to amend the platform: € 30,000.00 for IT Development and € 221,740.00 for project management.

The cost forecast for establishing and amending the RR-Platform in 2025 is:

TERRE	2025 [€]
Costs for amending	**251,740.00**
IT Development	**30,000.00**
Optimisation module	10,000.00
Data management	10,000.00
Hosting	0.00
IT Monitoring	0.00
Finance service	0.00
Testing	10,000.00
Central project team	**221,740.00**
PMO support	134,840.00
Business analyst	35,000.00
Senior IT adviser	51,900.00
Other consultancy	0.00
Publication in ENTSO-E's Transparency Platform	0.00

Clarifications:

- The 'Optimisation module' covers the support from the external provider for the additional developments of the AOF of the RR-Platform.
- The 'Data Management' covers the support from the external provider for additional developments of the data management module of the RR-Platform.
- The 'Testing' covers the support from PSE for the UAT of the RR platform.
- The 'PMO support' considers all PMO support for all groups.
- The 'Business analyst' is an external business analyst engaged to collect the RR requirements and support the functional design of the RR IT solution.
- The 'Senior IT adviser' is an external IT consultant engaged to coordinate the different providers and TSOs for the development and testing of the RR IT solution.

2.5.2 mFRR-Platform

As the mFRR-Platform became operational in 2022, the common costs for establishment are solely cost for amending the platform.

The cost forecast for common costs for establishing and amending the mFRR-Platform in 2025 is:

MARI	2025 [€]
Total costs for amending [€]	**7,653,067.00**
General project costs (i. e., external PMO, conveners, experts, legal counsel)	1,087,500.00
mFRR platform IT development	2,850,000.00
mFRR platform hosting and monitoring (amendment & establishment part like test environments)	1,940,567.00
Third party services (i. e., testing support, simulations)	1,775,000.00

Clarifications:

- The 'PMO support' considers all PMO support for the joint MARI-PICASSO Legal WG, the joint Project Management Team, ad-hoc cross-platform TFs, and the PICASSO Budget Management.

2.5.3 aFRR-Platform

As the aFRR-Platform became operational in 2022, the common costs for establishment are solely cost for amending the platform.

The cost forecast for common costs establishing and amending the aFRR-Platform in 2025 is:

PICASSO	2025 [€]
Total cost for amending	**721,800.00**
General project costs (i. e., external PMO, senior project lead, external convenors)	446,800.00
aFRR platform IT development	275,000.00

2.5.4 IN-Platform

The cost forecast for establishing and amending the IN-Platform in 2025 is:

IGCC	2025 [€]
Costs for amending	**50,000**
PMO support	0
PICASSO/IGCC Change Requests	50,000

Clarifications:

- The 'PMO support' is planned to be done by TSO, for joint groups with PICASSO the PICASSO PMO takes over the role.
- An estimated expense of € 50,000 in 2025 for possible Change Requests is taken into consideration.

2.5.5 CM IT Solution

The cost forecast for common costs establishing and amending the CM IT solution in 2025 is:

CM IT Solution	2025 [€]
Total costs for amending	**2,759,051.00**
General project costs (i. e., external experts, coordinators)	194,800.00
CM IT solution IT development	2,137,500.00
CM IT solution hosting and monitoring (establishment part)	356,751.00
Third party services (i. e., external audit)	70,000.00

2.6 Cost forecast for operating the European balancing energy platforms in 2025

2.6.1 RR-Platform

The cost forecast for operating the RR-Platform in 2025 is:

TERRE	2025 [€]
Operational costs	**1,742,326.50**
Optimisation module	424,156.50
Data management	274,813.00
Hosting	693,252.00
IT Monitoring	282,000.00
Financial service	68,105.00
Testing	0.00

Clarifications:

- 'Optimisation module' covers the support from external provider for the maintenance and support of the AOF of the RR-Platform.
- 'Data Management' covers the support from the external provider for the maintenance and support of the data management module of the RR-Platform.
- 'Hosting' covers the support from the external provider for the hosting of the RR IT solution (testing and production environments);
- 'IT monitoring' covers the support from external provider for the IT monitoring service of the RR IT solution;
- 'Financial service' covers the support from the external provider for the Finance service (invoicing process based on TSO – TSO settlement).

2.6.2 mFRR-Platform

Operational costs will only become common costs for operations once all TSOs have accessed the platform. As this is not expected to happen before 2026, there are no common costs for operations expected in 2025. The regional cost for operations are reported in the next chapter.

2.6.3 aFRR-Platform

Operational costs will only become common costs for operations once all TSOs have accessed the platform. As this is not expected to happen before 2026, there are no common costs for operations expected in 2025. The regional cost for operations are reported in the next chapter.

2.6.4 IN-Platform

In 2025, the settlement services for the IN-Platform will be performed JAO and will amount to circa € 108,944 for the full year 2025. No other operational costs are borne by the IGCC project given that the operation of the IN-Platform is covered by the normal operations of the Host TSO (TransnetBW) for operating their system, maximizing the efficiencies of using the infrastructure and personnel of an existing TSO and thus minimizing costs for all TSOs, including the Host TSO.

IGCC	2025 [€]
Operational costs	**108,944.00**
Financial service	108,944.00

2.6.5 CM IT Solution

Operational costs will only become common costs for operations once all TSOs have accessed the CM IT solution. As this is not expected to happen before 2025, there are no common costs for operations expected in 2025. The regional cost for operations are reported in the next chapter.

3 Chapter B: Regional costs resulting from the coordinated activities of all TSOs participating in a certain region

3.1 Actual costs of 2024

The following table provides an overview of total regional costs in 2024:

Actual costs 2024		Costs of establishing [€]		Costs of operating [€]	
mFRR-Platform	MARI TSOs' costs	1.a	1,454,399.28	1.b	505,715.39
aFRR-Platform	PICASSO TSOs' costs	2.a	1,170,059.92	2.b	625,825.41
CM IT Solution	MARI TSOs' costs	3.a	483,624.10	3.b	228,215.90

3.2 Costs of establishing in 2024

3.2.1 mFRR-Platform

The actual costs for establishing the mFRR-Platform in 2024 were:

MARI	2024 [€]
Total costs for establishment	**1,454,399.28**
IT Hosting & IT monitoring	342,678.92
IT support & maintenance	954,479.76
ECP network	157,240.61

MARI actual costs 2024 per TSO				
Country	**Participants**	**Member State**	**Consumption 2021 [GWh]**	**Amount per TSO [€]**
Belgium	Elia	1	83,069	63,359.59
Bulgaria	ESO	1	32,089	40,580.76
Croatia	HOPS	1	16,854	33,689.69
Denmark	Energinet	1	33,602	41,346.44
Estonia	Elering	1	8,135	24,884.43
Finland	Fingrid	1	189,827	63,551.01
France	RTE	1	442,322	224,725.55
Greece	IPTO	1	51,812	49,003.19
Hungary	MAVIR	1	43,387	45,749.07
Italy	Terna	1	300,887	161,174.55
Latvia	AST	1	6,930	24,501.59
Lithuania	Litgrid	1	11,954	26,415.78
Netherlands	TenneT NL	1	112,349	76,758.90
Norway	Statnett	1	128,443	83,841.39
Poland	PSE	1	157,314	96,666.44
Portugal	REN	1	48,117	44,026.30
Romania	Transelectrica	1	49,623	48,428.93
Slovak Republic	SEPS	1	26,457	38,092.32
Slovenia	ELES	1	13,550	32,158.34
Spain	RE	1	235,025	131,696.07
Sweden	SVK	1	131,028	84,989.90
Switzerland	Swissgrid	1	62,483	18,759.03
TOTAL		**22**	**2,183,999**	**1,454,399**

3.2.2 aFRR-Platform

The actual costs for establishing the aFRR-Platform in 2024 were:

PICASSO	2024 [€]
Total costs for establishment	**1,170,059.92**
Hosting & IT monitoring	886,433.06
ECP network	283,626.86

PICASSO actual costs 2024 per TSO

Country	Participants	Member State	Consumption 2021 [GWh]	Amount per TSO [€]
Belgium	Elia	1	83,069	53,375.45
Bulgaria	ESO	1	32,089	34,300.29
Croatia	HOPS	1	16,854	30,975.26
Denmark	Energinet	1	33,602	31,675.27
Estonia	Elering	1	8,135	27,300.23
Finland	Fingrid	1	83,301	58,275.49
France	RTE	1	442,322	205,801.75
Greece	IPTO	1	51,812	44,800.38
Hungary	MAVIR	1	43,387	41,825.35
Latvia	AST	1	6,930	26,775.23
Lithuania	Litgrid	1	11,954	29,050.25
Netherlands	TenneT NL	1	112,349	58,625.50
Norway	Statnett	1	128,443	76,825.65
Poland	PSE	1	157,314	88,725.75
Portugal	REN	1	48,117	43,750.37
Romania	Transelectrica	1	49,623	44,275.38
Slovak Republic	SEPS	1	26,457	32,025.27
Slovenia	ELES	1	13,550	29,575.25
Spain	RE	1	235,025	120,576.02
Sweden	SVK	1	131,028	77,875.66
Switzerland	Swissgrid	1	62,483	13,650.12
TOTAL		**21**	**1,776,586**	**1,170,059.92**

3.2.3 CM IT Solution

The actual costs for establishing the CM IT Solution in 2024 were:

CM IT Solution	2024 [€]
Total costs for establishment	**483.624.10**
Support and maintenance	340.990.86
ECP SLA	142.633.24

CM IT Solution actual costs 2024 per TSO

Country	Participants	Member State	Consumption 2021 [GWh]	Amount per TSO [€]
Bulgaria	ESO	1	32,089	19,148.50
France	RTE	1	442,322	100,298.26
Germany	50Hertz	0.20128	101,682	39,080.02
	Amprion	0.36311	183,434	61,645.34
	TenneT DE	0.30506	154,109	53,530.37
	TransnetBW	0.13055	65,951	29,256.62
Latvia	AST	1	6,930	18,934.94
Lithuania	LITGRID	1	11,954	35,449.63
Luxembourg	CREOS	1	6,393	7,687.87
Spain	RE	1	235,025	118,592.54
TOTAL		**7**	**1,239,887**	**483,624.10**

3.3 Costs of operating in 2024

3.3.1 mFRR-Platform

The actual costs for operating the mFRR-Platform in 2024 were:

MARI	2024 [€]
Total costs for operating	**505,715.39**
IT Hosting & IT monitoring	108,333.08
IT support & maintenance	301,745.25
ECP network	49,709.39
TSO – TSO invoicing	45,927.67

MARI actual costs 2024 per TSO				
Country	**Participants**	**Member State**	**Consumption 2021 [GWh]**	**Amount per TSO [€]**
Austria	APG	1	66,861	67,688.12
Czech Republic	ČEPS	1	61,304	64,950.14
Estonia	ELERING	1	8,135	6,295.99
Germany	50Hertz	0.20128	101,682	72,649.26
	Amprion	0.36311	189,827*	119,390.66
	TenneT DE	0.30506	154,109	100,913.09
	TransnetBW	0.13055	65,951	55,299.53
Latvia	AST	1	6,930	6,098.83
Lithuania	Litgrid	1	11,954	6,527.21
Portugal	REN	1	48,117	4,993.95
Slovak Republic	SEPS	1	26,457	193.28
Spain	RE	1	235,025	715.32
TOTAL		**9**	**976,350**	**505,715**

* Luxembourg's consumption added to Amprion since it operates the LFC area.

3.3.2 aFRR-Platform

The actual costs for operating the aFRR-Platform in 2024 were:

PICASSO	2024 [€]
Total costs for operating	**625,825.41**
Hosting & IT monitoring	439,371.70
ECP network	140,583.22
TSO – TSO invoicing	45,870.49

PICASSO actual costs 2024 per TSO				
Country	**Participants**	**Member State**	**Consumption 2021 [GWh]**	**Amount per TSO [€]**
Austria	APG	1	66,861	60,208.92
Belgium	Elia	1	83,069	5,689.71
Bulgaria	ESO	1	32,089	3,325.03
Czech Republic	ČEPS	1	61,304	57,591.47
Denmark	Energinet	1	33,602	7,509.29
Germany	50Hertz	0.20128	101,682	64,743.67
	Amprion	0.36311	189,827*	106,883.47
	TenneT DE	0.30506	154,109	90,370.98
	TransnetBW	0.13055	65,951	49,614.76
Italy	Terna	1	300,887	163,098.42
Netherlands	TenneT NL	1	112,349	13,248.24
Slovak Republic	SEPS	1	26,457	3,541.45
TOTAL		**9**	**1,228,185**	**625,825.41**

* Luxembourg's consumption added to Amprion since it operates the LFC area

3.3.3 CM IT Solution

The actual costs for operating the CM IT Solution in 2024 were:

CM IT Solution	2024 [€]
Total costs for operating	**228,215.90**
Support and maintenance	160,909.14
ECP SLA	67,306.76

CM IT Solution actual costs 2024 per TSO				
Country	**Participants**	**Member State**	**Consumption 2021 [GWh]**	**Amount per TSO [€]**
Czech Republic	ČEPS	1	61,304	96,667.87
Lithuania	Litgrid	1	11,954	14,450.35
Spain	RE	1	235,025	19,504.42
Switzerland	Swissgrid	1	62,483	97,593.26
TOTAL		**4**	**370,766**	**228,215.90**

3.4 Cost forecast 2025

According to the CSP Agreements for respectively PICASSO, MARI, and the CM IT Solution there are certain costs that are defined as regional costs until all MARI Members TSOs that intend to become Participating TSOs have become Participating TSOs. As of 2025 the exact split between establishing and operating will depend on when a Member TSO exactly accesses and the share of costs for establishment and amendment and the share for operating can be only determined once the year 2025 passed. Hence, only summary values for forecasted regional cost for 2024 are provided.

The following table provides an overview of total cost forecasts for 2025:

Cost forecast 2025			Total forecast [€]
mFRR-Platform	All MARI TSOs' costs	1.c	2,126,012.00
aFRR-Platform	All PICASSO TSOs' costs	2.c	2,041,000.00
CM IT Solution	All MARI TSOs' costs	3.c	821,280.00

3.4.1 mFRR Platform

MARI	2025 [€]
Total cost forecast	**2,126,012.00**
Hosting & IT monitoring	451,012.00
IT support & maintenance	1,355,000.00
ECP network	270,000.00
TSO – TSO invoicing	50,000.00

3.4.2 aFRR Platforms

PICASSO	2025 [€]
Total cost forecast	**2,041,000.00**
Hosting & IT monitoring	1,515,000.00
ECP network	440,000.00
TSO – TSO invoicing	86,000.00

3.4.3 CM IT Solution

CM IT Solution	2025 [€]
Total cost forecast	**821,280.00**
Support & maintenance	577,200.00
ECP network	214,080.00
Hosting service	30,000.00

4 Chapter C: National costs resulting from the activities of TSO(s) in a Member State

4.1 Actual costs of 2024

Category A: Representation in meetings

i. Time spent in the identified meetings including time for preparation, reported in euro at the rate of each TSOs

ii. Travel expenses related to the meetings considered in Ai

Category B: National IT implementation IT costs linked to developments and systems for market coupling/interface between TSO and each platform solely

i. Men/hour spent for development and testing

ii. External costs of development and testing (including directly buying IT tools that are needed for market coupling/for balancing platform matters only)

Country	TSO
Austria	APG – Austrian Power Grid AG
	VÜEN – Vorarlberger Übertragungsnetz GmbH
Belgium	Elia – Elia Transmission Belgium S.A.
Bulgaria	ESO – Electroenergien Sistemen Operator EAD
Croatia	HOPS – Croatian Transmission System Operator Ltd
Czech Republic	ČEPS – ČEPS, a.s.
Denmark	Energinet – Energinet
Estonia	Elering – Elering AS
Finland	Fingrid – Fingrid OyJ (Representing also Kraftnät Åland Ab in physical meetings)
	Kraftnät Åland Ab
France	RTE – Réseau de Transport d'Electricité, S.A
Germany	Amprion – Amprion GmbH
	TransnetBW – TransnetBW GmbH
	TenneT GER – TenneT TSO GmbH
	50Hertz – 50Hertz Transmission GmbH
Greece	IPTO – Independent Power Transmission Operator S.A.
Hungary	MAVIR ZRt. – MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság ZRt.
Ireland	EirGrid – EirGrid plc
Italy	Terna – Terna SpA
Latvia	Augstsprieguma tīkls – AS Augstsprieguma tīkls
Lithuania	LITGRID – LITGRID AB
Luxembourg	CREOS Luxembourg – CREOS Luxembourg S.A.
(The) Netherlands	TenneT TSO – TenneT TSO B.V.
	Britned Netherlands
Norway	Statnett – Statnett SF
Poland	PSE – PSE S.A.
Portugal	REN – Rede Eléctrica Nacional, S.A.
Romania	Transelectrica – C.N. Transelectrica S.A.
Serbia	EMS – Akcionarsko društvo Elektromreža Srbije
Slovak Republic	SEPS – Slovenská elektrizačná prenosovú sústava, a.s.
Slovenia	ELES – ELES,d.o.o
Spain	RE – Red Eléctrica de España S.A.U
Sweden	Svenska Kraftnät – Affärsverket Svenska Kraftnät
Switzerland	Swissgrid – Swissgrid AG
Northern Ireland	SONI System Operator for Northern Ireland Ltd

National costs, Category A [€]				National costs, Category B [€]			
TERRE	MARI	PICASSO	IGCC	TERRE	MARI	PICASSO	IGCC
N/A	39,017	13,754	3,895	N/A	0	0	0
N/A	81,418	75,341	See PICASSO	N/A	352,931	141,645	See PICASSO
N/A	18,407	24,381	0	N/A	0	0	0
N/A	25,224	18,250	0	N/A	28,300	24,000	0
16,353	47,264	28,064	6,069	140,643	376,287	257,095	58,069
N/A	48,195	73,755	5,940	N/A	0	1,487,935	0
N/A	7,565	1,840	0	N/A	66,200	40,000	0
N/A	6,625	36,210	N/A	N/A	16,071	188,895	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
53,495	113,015	41,994	Merged with PICASSO	13,979	3,405,604	478,500	Merged with PICASSO
N/A	187,305	30,493	1,215	N/A	176,452	435,639	N/A
N/A	45,660	200,308	22,042	N/A	13,883	96,980	N/A
N/A	130,164	161,568	0	N/A	11,888	5,000	N/A
N/A	114,600	125,100	0	N/A	11.500	64,200	N/A
N/A	16,316	23,518	675	N/A	–	2,240,827	2,713
0	0	16,632	13,608	0	0	2,681,018	2,193,560
0	0	N/A	N/A	0	0	N/A	N/A
51,027	58,315	57,763	11,333	101,637	1,785,256	65,398	0
N/A	4,354	3,256		N/A	333,475	311,130	
N/A	0	952.12	Merged with PICASSO	N/A	1,085,738,16	Merged with MARI	0
N/A	21,173	13,144	2,951	N/A	0	0	0
N/A	34,000	130,000	19,000	N/A	75,000	425,000	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	262,379	345,639	N/A	N/A	151,806	187,930	N/A
29,668	53,022	65,542	20.229	N/A	N/A	N/A	N/A
6,989	9,613	10,824	1,219	107,032	1,480,525	639,787	64,053
N/A	5,282	6,591	1,232	N/A	71,223	42,109	1,064
N/A	0	0	3.305	N/A	0	0	0
N/A	45,818	57,215	7,732	N/A	1,034,970	957,796	5,799
N/A	31,201	13,462	0	N/A	79,529	29,173	2,576
162,477	225,341	60,656	28,150	2,261	0	1.044.205,75	0
-	70,000	223,000	–	-	-	-	-
52,000	72,800	62,400	10,400	0	30,500	0	0
0	0	N/A	N/A	0	0	N/A	N/A

4.2 Annex: List of the meetings to be considered for category A

TERRE	MARI	PICASSO	IGCC
TERRE SC	MARI SC	PICASSO SC	IGCC SC
TERRE PMT/ Joint PMTs	MARI PMT/joint PMTs	PICASSO PMT/joint PMTs	IGCC PMT//joint PMTs
Legal group	Legal Working Group (LWG)	Legal WG	Legal group
Technical WG (TWG)	Technical Working Group (TWG)	Expert Groups: – TF Reporting and Monitoring – TF Pricing and Settlement – TF HVDC (at the moment on hold) – TF National Roadmaps – TF AOF	Expert group (EG)
Operations Group	Operational Working Group (OWG) OPSCOM	Operational WG OPSCOM	Operations committee (OPSCOM)
	Testing WG	Testing WG	
	– IT Working Group (IT WG) – IT Working Group Project Steering Committee (ITWG P-SC)	IT WG	
	Budget TF	Budget TF	
	Incident Committee	Incident Committee	
	MARI Negotiation Team (MNT)		
	CMM Working Group (CMM WG)		
	Transversal alignment: – Transparency Negotiation Team (ETP NT) – CSO TF – Project Coordination Group (PCG)		
Joint platform meetings (allocation – equally 25 % for each platform, in case all 4 platform joint meeting)			


+78.9800
-06.4257
+23456
-16.4678

Glossary

50Hertz	50Hertz Transmission GmbH
ACER	EU Agency for the Cooperation of Energy Regulators
aFRR	Frequency restoration reserves with automatic activation
aFRRIF	Implementation framework for the aFRR-Platform
Amprion	Amprion GmbH
AOF	Activation Optimisation Function
APG	Austrian Power Grid AG
AST	AS Augstsprieguma tïkls
AT	Austria
BiH	Bosnia and Herzegovina
BE	Belgium
BG	Bulgaria
EB Regulation	Guideline on electricity balancing
CACM Reg.	Guideline on capacity allocation and congestion management
ČEPS	ČEPS, a.s.
CGES	Crnogorski elektroprenosni sistem AD
CH	Switzerland
CMM	Capacity Management Module
Creos Luxembourg	Creos Luxembourg S.A.
CZ	Czech Republic
DE	Germany
DK	Denmark
EBSG	European Balancing Stakeholder Group
EE	Estonia
Eirgrid	EirGrid plc
Elering	Elering AS
Eles	Eles, d.o.o.
Elia	Elia Transmission Belgium SA

EMS	Akcionarsko društvo Elektromreža Srbije
Energinet	Energinet Elsystemansvar A/S
ESO	Electroenergien Sistemen Operator EAD
ES	Spain
EU	European Union
FAT	Factory Acceptance Testing
FI	Finland
Fingrid	Fingrid Oyj
FR	France
GB	Great Britain
GR	Greece
HOPS	Croatian Transmission System Operator Ltd.
HR	Croatia
HU	Hungary
IE	Ireland
IGCC	International Grid Control Cooperation
INIF	Implementation framework for the IN-Platform
IPTO	Independent Power Transmission Operator S.A.
IT	Italy
Litgrid	Litgrid AB
LU	Luxembourg
MARI	Manually Activated Reserves Initiative
MAVIR ZRt.	Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság
mFRR	Frequency restoration reserves with manual activation
mFRRIF	Implementation framework for the mFRR-Platform
MNE	Montenegro
MEPSO	Macedonian Transmission System Operator AD
MKD	Macedonia

MoU	Memorandum of Understanding
National Grid	National Grid ESO
NL	Netherlands
NO	Norway
NOSBiH	Nezavisni operator sustava u Bosni i Hercegovini
NRA	National regulatory authority
OST	OST sh.a – Albanian Transmission System Operator
PICASSO	Platform for the International Coordination of Automated Frequency Restoration and Stable System Operation
PL	Poland
PMO	Project Management Officer
PSE	Polskie Sieci Elektroenergetyczne
PT	Portugal
RE	Red Eléctrica de España S.A.U.
REN	Rede Eléctrica Nacional, S.A.
RO	Romania
RR	Replacement reserves
RRIF	Implementation framework for the RR-Platform
SRB	Serbia
RTE	Réseau de Transport d'Electricité
SE	Sweden
SEPS	Slovenská elektrizačná prenosová sústava, a.s.
SI	Slovenia
SK	Slovakia
SLA	Service level agreement
SO Regulation	Guideline on electricity transmission system operation
SONI	System Operator for Northern Ireland Ltd
Statnett	Statnett SF
SVK	Svenska Kraftnät
Swissgrid	Swissgrid AG
TenneT DE	TenneT TSO GmbH
TenneT NL	TenneT TSO B.V.
Terna	Terna - Rete Elettrica Nazionale SpA
TERRE	Trans-European Replacement Reserves Exchange
Transelectrica	National Power Grid Company Transelectrica S.A.
TransnetBW	TransnetBW GmbH
TSO	Transmission System Operator
UAT	User acceptance testing

The terms used in this document have the meaning of the definitions included in Article 2 of the EB Regulation and in the respective EB methodologies.

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