entsog

european network
of transmission system operators
for gas

ANNUAL REPORT

2023

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PRESIDENT'S FOREWORD

The end of 2023 marked a significant milestone for ENTSOG and the gas TSOs, after two years of intense discussions around the updated EU rules to decarbonise the gas market and set the future framework for the emerging hydrogen market. The provisional text for the Hydrogen and Decarbonised Gas Package was agreed by the Council of the EU and the European Parliament in December, providing some clarity on the significance of repurposing the gas grids for renewable and low carbon gases.

Since its establishment under the EU Third Energy Package, ENTSOG directed its agenda to progress the integration of the European gas market and implement measures for energy supply security. This agenda included the successful delivery of Network Codes and Guidelines, supporting regional and technical cooperation, and assessing grids resiliency via the Ten-Year Network Development Plan process. In parallel, in recent years, we were already proactively including the consideration of the energy transition gases in our tasks and infrastructure planning. **More than ever, we maintain our ambitious objectives going forward**, guided by the new legislation coming into force in 2024.

BART JAN HOEVERS
President, ENTSOG

PIOTR KUŚ
General Director, ENTSOG

In the context of the new legislation, we gladly note the proposal for our continued involvement in the integrated planning for the gas and hydrogen systems with oversight of the next two TYNDP cycles and associated gas quality monitoring reports. We are also tasked with the amendment of the Network Code for Capacity Allocation Mechanism and the Guidelines for Congestion Management Procedures, and are actively discussing the next steps with the European Commission at stakeholder fora, such as the Madrid Forum. There may be a requirement to undertake a review of the Interoperability and Data Exchange Network Code, for the inclusion of all gases in the system. Furthermore, ENTSOG will have an important function to ensure interoperability, security of supply with gas and hydrogen, and an efficient gas grids repurposing process.

With regards to ENTSOG's work in 2023: as for previous years, **ENTSOG's active stakeholder engagement was a key priority.** Besides ENTSOG usual processes for dialogue with the energy industry, we also continued our good cooperation with CEN (the European Standards body) and other stakeholders in normative work, engaging on the recommendations and considerations related to the definition of future gas quality management and hydrogen handling principles.

The **Stakeholder Reference Group** (SRG) was established in late 2023 aiming at providing expert input to and oversight over the development of scenarios (operating independently from ENTSO-E and ENTSOG), as required by ACER's *"Framework Guidelines for the joint TYNDP scenarios to be developed by ENTSO for Electricity and ENTSO for Gas"*.

ENTSOG and the gas TSOs also analysed the potential impact of changes to Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT) and have been active in several ACER fora discussing the continued implementation and improvements to REMIT.

Furthermore, ENTSOG continued its mandate in 2023 as **facilitating organisation for the Roundtable on Clean Hydrogen Transmission and Distribution**, as part of the European Clean Hydrogen Alliance, and assisted with the development of two deliverables: the *"Learnbook on Hydrogen Supply Corridors"* and the *"Learnbook on Hydrogen Imports to the EU"*, to address the topics of core importance to the emerging hydrogen value chain. In 2023, ENTSOG also supported the establishment of two new task forces in this Roundtable – *Implementation of Hydrogen Supply Corridors* and *Financing of Hydrogen Projects*. For future needs, ENTSOG sees the importance of a clear financing support mechanism for hydrogen infrastructure projects, to accelerate an efficient and cost-effective decarbonisation.

We likewise look to the future legislative frameworks, particularly those relating to the recently published European Commission Industrial Carbon Management (ICM) Communication and Europe's 2040 Targets. Planning for CO_2 transport and CCUS had already begun in 2023.

> *ENTSOG will have an important function to ensure interoperability, security of supply with gas and hydrogen, and an efficient gas grids repurposing process.*

Most importantly, we believe we have critical role in the future framework by supporting Energy System Integration (ESI) with other energy infrastructure operators and that a successful energy *"Transition is not possible without Transmission"*. **The delivery of ESI in practice means the implementation of planning and development of all clean carriers in unison.** Without this, a loss of efficiency and affordability for energy users is an unavoidable result, hampering emissions abatement and EU industrial policies. Molecules today provide most of the energy to users due to physical handling ease, economy of infrastructure, reduced conversion costs, and affordable flexibility and storage. We see the efficient and reliable delivery of decarbonised energy system at the most affordable prices as the ultimate EU goal.

I am proud of the efforts of the ENTSOG Brussels Team and the close working relationship with the gas TSOs, enabling concrete and proactive steps to further support Europe's focus on addressing climate change and reforming its energy system. The structure of ENTSOG, with the embedded expertise of its members as well as of its Brussels office has achieved its clear objectives to date. We stand ready to implement the new legislative frameworks for a secure, sustainable and affordable European gas market.

BART JAN HOEVERS
President, ENTSOG

GENERAL DIRECTOR'S FOREWORD

Each December, the ENTSOG Annual Conference presents a great opportunity to take stock together with ENTSOG members on the outcomes of the year gone by, and an occasion to exchange with our energy stakeholders on what is ahead of us. The 2023 event in particular provided a much clearer outlook of future expectations, occurring a few days after the agreement of the Hydrogen and Decarbonised Gas Package.

Clearly, the policymakers see that **gas infrastructure is an asset of significant value for repurposing** and we share this belief – repurposing gas infrastructure for hydrogen transport provides a dedicated cross-border energy network at a fraction of the cost of new infrastructure construction. ENTSOG is prepared to implement the tasks required in the new legislation, when fully adopted in 2024, on gas and relevant interfaces with the hydrogen and electricity sectors.

Looking back, a lot was achieved throughout 2023. Both the draft and final TYNDP 2022 formats were published, in which ENTSOG assessed for the first time the contribution of hydrogen and natural gas infrastructure to meet EU climate and energy targets, as well as the subsequent identification of infrastructure gaps. Additionally, ENTSOG undertook **project-specific cost-benefit analysis** of candidate projects to the first Union list under the revised TEN-E Regulation, via the Ten-Year Network Development Plan (TYNDP).

In response to the 2022 energy crisis and continuing throughout 2023, the **Regional Coordination System for Gas (ReCo) teams** undertook joint simulation exercises with the European Commission to provide the technical options available to maintain adequate gas flow and ensure a stable security of supply at all times under various stress cases scenarios.

Thanks to immense efforts over the last two years, we observe that the situation in the EU gas market has gradually stabilised. **Increased LNG supplies** and the utilisation of **alternative supply routes** were in response to market demands and available capacities. Furthermore, the gas market saw active injections into storage facilities throughout the summer and autumn periods of 2023, culminating in a record storage filling level of 99.6 % across the EU on 6 November. The coordination and cooperation of European TSOs enabled maximised usage and availability of capacities, via inter alia coordinated maintenance activities.

Thanks to immense efforts over the last two years, we observe that the situation in the EU gas market has gradually stabilised.

Regarding the Seasonal Supply Outlook reports, ENTSOG for the first time included simulations limited not only to the investigated season, but also the consecutive twelve months. In each report, ENTSOG additionally assessed the dependence of the EU on the Russian supply during summer 2023 and winter 2023/24. ENTSOG offers its ongoing support to the Ukrainian partners, and in July 2023 met with the Gas Transmission System Operator of Ukraine (GTSOU) CEO and Deputy CEO at the ENTSOG office, to discuss possibilities of closer cooperation.

Examining all avenues to decarbonise the European grids is a priority for the gas TSOs and an important new element being assessed is the CO_2 transport. This was a central focus of ENTSOG's own **Advisory Panel for Future Gas Grids** in 2023, with exchanges primarily related to Carbon Capture, Utilisation and Storage (CCUS) and how existing grids may serve CO_2 transport, involving stakeholders both in industry and the European Commission. A Recommendation Report based on the output of the these discussion was recently published and is available on the ENTSOG website.

Picture courtesy of Gasum

As one of six involved associations (with Eurogas, CEDEC, Geode, GD4S and GIE) ENTSOG managed the twice yearly updates of joint **Hydrogen Infrastructure Map** – in April and November 2023 – representing projects across the hydrogen value chain for transmission, distribution, storage, import terminals, production and off-takers. Since the map was first published at the end of 2022, the number of projects displayed has more than doubled. The latest update at the end of 2023 displayed approximately 450 projects in total, with an notable increase in the types and geographical spread of projects being submitted by interested project promoters.

Including gas TSOs in an integrated energy system can enable a secure and reliable energy system of the future, whereby all sectors can contribute to EU emissions reduction, affordability and resilience targets. This is already demonstrated by the **ongoing cooperation with ENTSO-E** under the joint efforts for scenarios building for the gas and electricity TYNDPs. Existing gas infrastructure has already proven its reliability, providing needed flexibility, stability and security of supply and should be further maintained throughout the energy transition process.

Within the new legislative frameworks, ENTSOG will continue to provide the needed support for stability of network operations and enable an affordable and low-carbon energy future. We can do this, as we have done in the past, by facilitating knowledge and expertise transfer to new emerging hydrogen and biomethane value chains and progressing work on the CO_2 transport and CCUS technologies

Now and in the months and years ahead, there is no doubt that ENTSOG will continue its work as a proactive, trusted and technical adviser on gas transmission related topics on a European level and support the achievement of the EU goals of competitiveness, security of supply and sustainability.

PIOTR KUŚ
General Director, ENTSOG

Picture courtesy of SGI

1

ORGANISATIONAL STRUCTURE AND MEMBERSHIP

The role of the European Network of Transmission System Operators for Gas (ENTSOG) is to facilitate and enhance cooperation between national gas transmission system operators (TSOs) across Europe, and to ensure the development of a pan-European transmission system in line with European Union energy and climate goals.

ENTSOG operations are governed by its General Assembly (GA), which leads the Association and has full powers to enable it to achieve its objectives. Its tasks include the admission of Members; the appointment of the Management Board, the General Director and business area Directors; the establishment of working and regional groups; and the adoption of ENTSOG deliverables.

Internally, ENTSOG is divided into four business areas: System Operation, System Development, Market, and Strategy, Policy and Communication. These areas manage the many activities with which ENTSOG is tasked – cooperation for security of supply and providing transparency, ensuring REMIT compliance and technical cooperation **(System Operation and System Development)**; activities associated with scenario building and future gas infrastructure planning **(System Development)**; the development and implementation of Network Codes and guidelines and assessment of current and future gas market design **(Market)**; and the coordination of strategic topics and policy processes within ENTSOG and communication of ENTSOG activity outside the organisation **(Strategy, Policy and Communication)**. The management team has five support groups which provide compliance, financial and other services across the association. These are Legal, HR, Finance, IT and Administration.

ENTSOG Working Groups (WG), Kernel Groups (KG) and Task Forces (TF) associated with delivering tasks are assigned to the four business areas. The main WGs are shown in Figure 1.

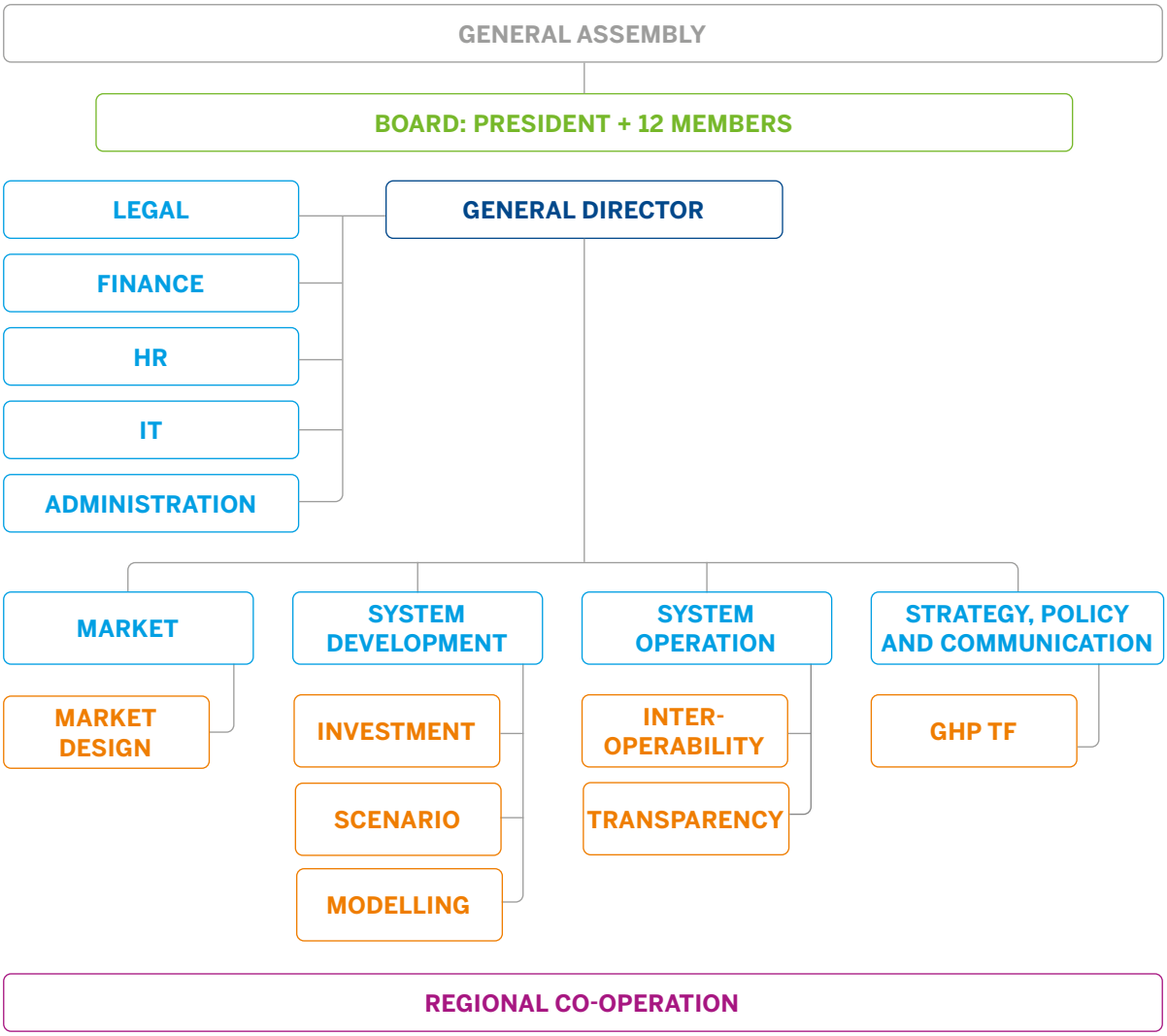

Figure 1: ENTSOG internal organisational structure (as of 31 December 2023)

A WG is the primary means for the management and delivery of ENTSOG's main content development and output (e.g., Summer/Winter Outlooks, TYNDP, Network Codes monitoring reports, position papers, responses, etc.) before their validation at Board and approval at GA level.

A KG is a more specialised group set up within a WG for the preparation of documents, proposals or for discussion of specific technical issues to prepare and facilitate the WG discussions. A TF is established specifically for particular activities that do not fit within the scope of existing WGs or due to the cross-functional nature of the activity. It is established by the Board upon recommendation of the General Director, including the specification of its Terms of Reference.

WGs and TFs typically meet on a monthly basis and KGs meet on an ad-hoc basis, as required.

ENTSOG **MEMBERSHIP**

Since its foundation on 1 December 2009, ENTSOG Member TSOs have provided wide coverage of the European gas market, operating in Member States of the European Union. ENTSOG's Articles of Association were modified in December 2010 to admit TSOs from EU countries derogated from the Third Energy Package, as Associated Partners. This allows such TSOs to participate in ENTSOG activities.

In February 2011, TSOs from Third Countries (candidates for EU accession, members of the Energy Community, EEA or EFTA), interested in following development of ENTSOG activities, were also admitted to the Association as Observers. Following Brexit and in accordance with the established EU–UK Trade and Cooperation Agreement, UK TSOs are no longer ENTSOG Members as of 1 January 2022.

As of 31 December 2023, ENTSOG's membership was comprised of:

44 TSO Members, 1 Associated Partner from an EU country, and 9 Observers from non-EU countries.

MEMBERS (44)

Austria
- Gas Connect Austria GmbH
- TAG GmbH

Belgium
- Fluxys Belgium S. A.
- Interconnector Limited

Bulgaria
- Bulgartransgaz EAD
- ICGB AD

Croatia
- Plinacro

Czech Republic
- NET4GAS, s.r.o

Denmark
- Energinet

Estonia
- Elering Gaas AS

Finland
- Gasgrid Finland Oy

France
- GRTgaz
- TERÉGA

Germany
- bayernets GmbH
- Fluxys TENP GmbH
- GASCADE Gastransport GmbH
- Gastransport Nord GmbH
- Gasunie Deutschland Transport Services GmbH
- GRTgaz Deutschland GmbH
- NEL Gastransport GmbH
- Nowega GmbH
- Ontras Gastransport GmbH
- Open Grid Europe GmbH
- terranets bw GmbH
- Thyssengas GmbH

Greece	– DESFA S. A.
Hungary	– FGSZ Natural Gas Transmission
Ireland	– Gas Networks Ireland
Italy	– Infrastrutture Trasporto Gas S.p.A. – Snam Rete Gas S.p.A. – Società Gasdotti Italia S.p.A
Latvia	– Conexus Baltic Grid
Lithuania	– AB Amber Grid
Luxembourg	– Creos Luxembourg S. A.
Netherlands	– BBL Company V.O.F. – Gasunie Transport Services B. V.
Poland	– Gas Transmission Operator GAZ-SYSTEM S. A.
Portugal	– REN – Gasodutos, S.A.
Romania	– Transgaz S.A.
Slovak Republic	– eustream, a.s.
Slovenia	– Plinovodi d.o.o.
Spain	– Enagás S.A. – Reganosa S.A.
Sweden	– Swedegas AB

ASSOCIATED PARTNERS (1)

Switzerland	– Trans Adriatic Pipeline AG (Greece, Albania, Italy)

OBSERVERS (9)

Albania	– Albgaz
Bosian and Herzegovina	– BH-Gas Ltd. Sarajevo
North Macedonia	– NOMAGAS JSC
Norway	– Gassco AS
Switzerland	– Swissgas AG – Erdgas Ostschweiz AG – Transitgas AG – FluxSwiss Sagl
Ukraine	– LLC Gas Transmission System Operator of Ukraine

Status as of 31 December 2023

MEMBERS MAP

STATUS: DECEMBER 2023

44 Members

1 Associated Partner

9 Observers

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Since its foundation, ENTSOG Member TSOs have provided wide coverage of the European gas market. In addition, ENTSOG's Articles of Association were modified in December 2010 to admit TSOs from EU countries currently derogated from the Third Energy Package, such as the Baltic States, as Associated Partners. This allowed for participation in ENTSOG activities.

In February 2011, TSOs from Third Party countries (candidates for EU accession, members of the Energy Community or EFTA) interested in following development of the network codes were also admitted to the Association as Observers.

Following Brexit and in accordance with the established EU–UK Trade and Cooperation Agreement, UK TSOs are no longer ENTSOG Members as of 1 January 2022.

AUSTRIA, GERMANY AND SWITZERLAND

Picture courtesy of Energinet

2

SUMMARY OF ENTSOG'S **ACTIVITIES AND DELIVERABLES** IN 2023

The Annual Report assesses ENTSOG's work and achievements retrospectively for each given year and provides an opportunity to assess the status of work when comparing the executed results against those planned in the Annual Work Programme.

Since its establishment, ENTSOG's regulatory tasks and deliverables have been within the remit of Gas Regulation (EC) No 715/2009, TEN-E Regulation (EU) No 347/2013, and Security of Gas Supply Regulation (EU) 2017/1938, and have included:

1. **Delivering common operational tools to ensure network security and reliability.**
2. **Providing regular information on gas supply and demand for the European market.**
3. **Elaborating Ten-Year Network Development Plans (TYNDPs).**
4. **Developing network codes and guidelines for market and system operation.**

More recently, ENTSOG activities also fell within the scope of updated Regulation (EU) 2022/869 (TEN-E Regulation) and emergency security of supply measures associated with the energy crisis following Russia's invasion of Ukraine, namely: the Gas Storage Regulation (2022/1032); the Enhancing Solidarity Regulation (2022/2576), the Market Correction Mechanism Regulation (2022/2578) and the Council Regulation (EU) 2022/1369 on coordinated demand-reduction measures for gas.

While ENTSOG's focus remains on fulfilling the tasks as required by the established regulatory framework, it also strives to meet the objectives associated with the European Green Deal and REPowerEU Plan, to ensure a secure, competitive and sustainable European gas market. It will continue to assess the longer-term horizons for European scenarios, to meet EU energy and climate goals.

A summary of the key ENTSOG activities is provided in the sections below.

The key deliverables are outlined in **"ENTSOG deliverables 2023" (Page 20)**.

The status of the activities and deliverables which had been planned and included in the AWP 2023 are provided in section **"Work Programme status" (Page 22)**.

SECURITY OF SUPPLY AND REGIONAL COOPERATION

Russia's war against Ukraine at the beginning of 2022 posed significant challenges to European and global energy security. In parallel, with the EU and global collective efforts to minimise potential risks related to security of gas supply, ENTSOG and European gas TSOs took immediate and robust measures to ensure efficient and continued gas transport in unprecedented circumstances.

Since then, European TSOs have been having **regular ReCo calls** to monitor the gas market behaviour, gas flows' patterns, usage of underground gas storage facilities, and exchange of information about any potential risks for security of gas supply. In addition, ENTSOG and the TSOs carried out two tabletop exercises in 2023 to test the gas system's resilience and readiness to address relevant supply disruptions. ENTSOG continues to work in close coordination with the European Commission (EC) and JRC (Joint Research Centre) to assess gas flows patterns and how Member States and gas industry players may act in case of emergencies.

In its **Summer Supply Outlook 2023** and **Winter Supply Outlook 2023/24**, ENTSOG continued (following the interest of institutions and stakeholders) an overview analysis where simulations in seasonal outlooks are not only limited to the investigated season but covers the consecutive twelve months. In each report, ENTSOG additionally assessed the dependence of the EU on the Russian supply during summer 2023 and winter 2023/24.

Picture courtesy of Enagás

In 2023, ENTSOG observed a roughly **two-fold decrease in pipeline-based gas supply to Europe from Russia compared to 2022**. Despite this, gas prices on EU hubs remained relatively stable, averaging less than 70 Euro/GWh at the beginning of the year and dropping to less than 40 Euro/GWh in the second half, with no significant spikes as seen in 2022, which reached up to more than 300 Euro/MWh. The year was characterised by high LNG supplies and the utilisation of alternative supply routes in response to market demands and available capacities. Furthermore, the gas market saw active injections into storage facilities throughout the summer and autumn periods, culminating in a **storage filling level of 99.6 %** across the EU on 6 November 2023.

ENTSOG shared these their detailed observations with the **EC and the Gas Coordination Group (GCG)** on a regular basis and supported by providing operational and gas system expertise, knowledge, and information relevant to security of gas supply.

SYSTEM DEVELOPMENT SCENARIOS AND INFRASTRUCTURE

Throughout 2023, ENTSOG continued with activities related to scenario development and TYNDP processes. ENTSOG **finalised its TYNDP 2022 process** with the publication of both draft and final publications. As part of the TYNDP 2022, ENTSOG assessed the contribution of hydrogen and natural gas infrastructure to the fulfilment of EU climate and energy targets, and subsequent identification of infrastructure gaps.

Work also progressed with ENTSO-E on the **project for electricity and gas interlinkages**. The TYNDP 2024 scenario building process progressed throughout 2023. In July and August, input data was consulted with external stakeholders via a public consultation. In Autumn 2023, the Stakeholder Reference Group (SRG) was founded according to the *"Framework Guidelines for the joint TYNDP scenarios to be developed by ENTSO for Electricity and ENTSO for Gas"* of ACER.

The Interlinked Model progressed so that it is able to test hydrogen, electricity and electrolyser projects using the social economic welfare approach developed in the modelling team. This allows project benefits to be split between EU and Non-EU countries. This progress marks important milestones for the delivery of the interlinked model and has been further detailed in the ILM 2022 Progress Report.

Additionally, ENTSOG undertook **project-specific cost-benefit analysis of candidate projects** to the first Union list under the revised TEN-E Regulation that were published in the summarised format of a project fiche as part of TYNDP 2022 final publication.

SYSTEM OPERATION, INTEROPERABILITY AND TRANSPARENCY REQUIREMENTS

In 2023, ENTSOG continued to cooperate with CEN and other stakeholders in normative work and to include recommendations and considerations related to the definition of future gas quality management and hydrogen handling principles.

The **ENTSOG Interoperability Team**, together with the ENTSOG Members, worked on the publication of the **Implementation and Effect monitoring report for the Interoperability and Data Exchange Network Code** and produced and published the Annex 2 of the Implementation Monitoring Report 2021 which includes a detailed assessment of Interconnection Agreements' compliance with the Network Code for a list of IPs selected and agreed between ENTSOG and ACER.

On the **Methane Emissions Regulation** proposal development by the EU legislators, ENTSOG has provided its expertise and technical support in discussions within the Methane Emissions Joint Expert Group on the development of the regulation.

Furthermore, the ENTSOG EIC **Local Issuing Office** services continued in 2023.

The ENTSOG Transparency Team and the Transparency Working Group undertook work in 2023 to improve the **ENTSOG Transparency Platform (TP)**, maintaining and improving the continuous provisions of transparency information required by the **Tariff (TAR)**, **Interoperability (INT)** and **Capacity Allocation Mechanism (CAM) Network Codes and Transparency Guidelines** and the data provision required by REMIT. Additionally, ENTSOG and the gas TSOs have been active in several ACER fora discussing the continued **implementation and improvements to REMIT**. In 2023, an exceptionally high interest in the TP data was also accommodated by means of increased support of users.

MARKET NETWORK CODES & GUIDELINES AND MARKET ASSESSMENT

With regards to ENTSOG's ongoing Network Code Monitoring, the Market area published, in 2023, the respective reports for Implementation and Effect Monitoring of the CAM NC and CMP Guidelines. Work on the Network Code Monitoring reports for 2024 commenced in 2023 with data collection for BAL NC monitoring and TAR NC monitoring in the last quarter of the year – respective Executive Summaries for both monitoring reports are included in this ENTSOG Annual Report.

The following list outlines timeline for publication and implementation of each of the currently existing Network Codes and Guidelines:

Publication	Implementation
Guidelines on Congestion Management Procedures (CMP GLs) and on Transparency	Published as Annex I to Regulation (EU) No 715/2009, entry into force in October 2013. Only one ENTSOG member has not yet fully implemented the CMP GLs[1]
CAM NC – Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems	Published on 14 October 2013 as Regulation (EU) No 984/2013, entered into force in November 2015. CAM NC – Amendment for Incremental capacity. Regulation (EU) 2017/459, the first amendment of the NC, entering into force on 6 April 2017. Implementation of the NC has been completed by the majority of TSOs. In some specific cases implementation is still ongoing[2].
BAL NC – Network Code on Gas Balancing of Transmission Networks	Published 26 March 2014 as Regulation (EU) No 312/2014. Implementation of the NC has been completed by all countries, however, in a few specific cases, parts of the implementation are still ongoing.
INT NC – Network Code on Interoperability and Data Exchange Rules	Published on 30 April 2015 as Regulation (EU) No 703/2015, implemented by May 2016. Compliance with the NC is very high.
TAR NC – Network Code on Harmonised Transmission Tariff Structures for Gas	Published on 16 March 2017 as Regulation (EU) No 460/2017, entry into force on 6 April 2017, a high level of implementation has been reached.

Table 1: TheTable outlines the timeline for publication and implementation of each of the Network Codes and Guidelines

Furthermore, the Market Area developed the Third Incremental Capacity Process report and prepared the Auction Calendar 2024/2025 for the Capacity Allocation Mechanisms Network Code, published in 2023.

In 2023, the team organised a **workshop on maximisation and efficient use of gas transmission capacities** together with ACER, with reference to the Enhancing Solidarity regulation[3]. Also, the Market Area participated in the Industry Advisory Group, which focused on gas purchases to support European security of gas supply (via the AggregateEU platform).

In 2023, the Market Area also worked on the Gas Network Codes Functionality Platform, which develops solutions to issues raised through the jointly managed ACER and ENTSOG **Functionality (FUNC) Process**. Solutions for two issues on the Func platform were proposed in 2023.

In 2023, the Market Area also closely monitored the ACER analysis on national periodical consultations on TSO tariffs for a regulator's perspective on tariffs in Europe.

The Market Area in collaboration with other ENTSOG Business Areas provided their contribution to public consultations: related to the **"Industrial carbon management – carbon capture, utilisation and storage deployment"** consultation – especially contributing knowledge in the field of gas transport and transport regulation. The group also provided its input to the **"Electricity market – reform of the EU's electricity market design"** consultation, as well as the **"Impact Assessment on the proposal for a Network Code on Demand Side Flexibility"** and the **"Energy Sector Integration" study** undertaken by Trinomics for DG ENER.

Furthermore, the **Market Area contributed to an open letter** sent from the Guarantee of Origin Prime Movers Group on the topic of the Union Database implementation – envisioned in the Renewable Energy Directive – and prepared, then sent a response for the ACER consultation of the Revision of the CAM Network Code.

1 See the latest findings in CMP GL Implementation & Effect Monitoring Report published in 2023 in Chapter 2.

2 See the latest findings in CAM NC Implementation & Effect Monitoring Report published in 2023 in Chapter 3.

3 See the full regulation here: Regulation – 2022/2576 – EN – EUR-Lex (europa.eu)

STRATEGY, POLICY AND COMMUNICATION

In 2023, the GHP TF (Gas & Hydrogen Package TF) facilitated the coordination of legislative files impacting the grid infrastructure, including the strategic input and coordinated work on the **Hydrogen and Decarbonised Gas Market package**. The TF, in conjunction with ENTSOG business areas, specifically worked on analysing and developing **responses to the recast Gas Directive and Gas Regulation**. The TF was guiding the Team in addressing the relevant questions coming to ENTSOG, mainly related to tariffication, repurposing possibilities (technical and economic conditions) and to security of supply for gas and hydrogen.

The GHP TF members also discussed the planning and repurposing pipelines for CO_2 transport, in the context of the upcoming planned EU strategy for CCUS. The potential impact of changes to Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT) were also considered.

In 2023, the TF, in cooperation with relevant WGs, monitored EU policy developments and provided regular updates to the ENTSOG Members, GA and ENTSOG Board. The main focus of the TF was on actions stemming from relevant legislative files.

The TF was also involved in setting priorities for engagement with stakeholders in bilateral and multilateral fora. The TF was informed and regularly updated on **ENTSOG activities in the Advisory Panel for Future Gas Grids**, focusing on stakeholder dialogue related to CCUS and CO_2 transport, developing a Recommendation Report based on these exchanges.

In addition, the TF was informed on ENTSOG activities in facilitating the **Roundtable on Clean Hydrogen Transmission and Distribution under the European Clean Hydrogen Alliance**, addressing the topics of hydrogen supply corridors and hydrogen imports to the EU, facilitating the development of two Learnbooks.

The Strategy, Policy and Communication Team managed the developments of the **joint Hydrogen Infrastructure Map**, including two updates to the published map – in April and November 2023 – including projects across the hydrogen value chain for transmission, distribution, storage, import terminals, production and off-takers-in This was done in collaboration with Eurogas, CEDEC, Geode, GD4S and GIE.

ENTSOG **MANAGEMENT SUPPORT**

ENTSOG's Management Support team continued working in 2023 with ENTSOG teams and management and working with ENTSOG members. Support was via the **Legal, HR, Finance, IT and Administration** functions to ensure a robust platform for the activities and deliverables of ENTSOG.

The ENTSOG Legal Team ensured the proper working of the day-to-day activities from the legal and corporate perspective.

ENTSOG Human Resources continued with a well-prepared recruitment process, so that the relevant resources and competences were in place to perform the required activities.

Working with several IT providers, vendors and IT contractors, the IT Team plans, manages, builds and operates IT systems to support ENTSOG advisors and their activities. In 2023, they provided IT support to ENTSOG stakeholders in the use of ENTSOG's data and systems.

ENTSOG **DELIVERABLES 2023**

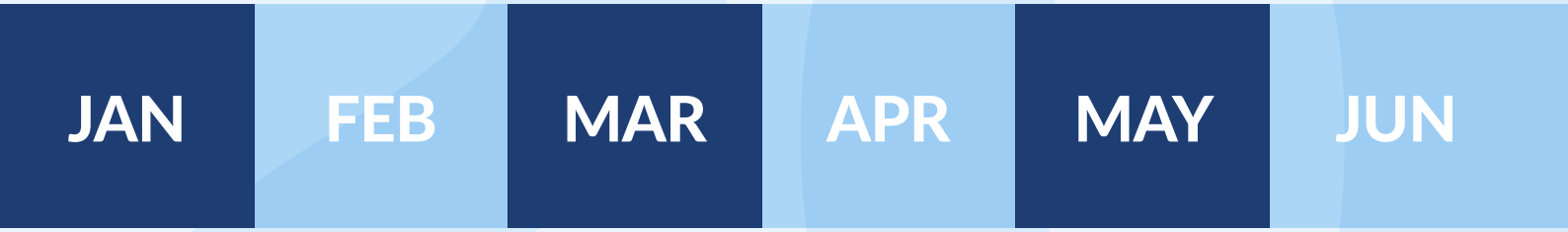
JANUARY

13 // CAM Network Code "Capacity Auction Calendar" for 2023/2024

17 // ENTSOG and GIE's System Development Map 2021/2022

APRIL

06 // Summer Supply Outlook 2023 (with Winter 2023/24 overview) and Summer Supply Review 2022



FEBRUARY

28 // ENTSOG preliminary single-sector Cost-Benefit Analysis (CBA) methodology for stakeholder feedback

APRIL

11 // ENTSOG TYNDP 2022 and opens public consultation

17 // European Clean Hydrogen Alliance: "Learnbook on Hydrogen Supply Corridors"

27 // Annual Report 2022 and two Monitoring Reports

JULY

03 // ENTSOG Cost-Benefit Analysis Methodology for hydrogen infrastructure projects

SEPTEMBER

12 // Guidelines for Project Inclusion (GPI) for TYNDP 2024

DECEMBER

18 // Capacity Allocation Mechanisms (CAM) Network Code "Capacity Auction Calendar" for 2024/2025

19 // Annual Work Programme 2024

21 // European Clean Hydrogen Alliance "Learnbook on Hydrogen Imports to the EU market"

AUGUST

16 // ENTSO-E and ENTSOG Scenarios External Technical Advisory Group (Scenarios ETAG)

OCTOBER

16 // Final Guidelines for Project Inclusion (TYNDP 2024)

17 // Winter Supply Outlook 2023/24 (with Summer 2024 Overview) and Winter Supply Review 2022/23

NOVEMBER

28 // Updated monitoring report of Incremental Capacity Process and Demand Assessment Reports summary

WORK PROGRAMME STATUS

These tables provide an overview of the activities in ENTSOG's four main business areas –System Development, System Operation, Market, and Strategy, Policy and Communication (SPC). The listed tasks originate (and are supplemented in some cases) from the Annual Work Programme 2023.

SYSTEM DEVELOPMENT

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
TYNDP 2022	Assess the infrastructure against the European Energy Policies to identify infrastructure gaps and mitigation of these gaps by projects on the basis of the CBA Methodology in force.	Draft TYNDP 2022 Infrastructure report (April 2023) Draft TYNDP 2022 Map (April 2023) Draft TYNDP 2022 System assessment Report (April 2023) Relevant draft TYNDP 2022 Annexes (April 2023) Final TYNDP 2024 including PS-CBA package (September 2023)	TSOs, ACER, stakeholders	TYNDP 2022
TYNDP 2024	Project collection TYNDP 2024 (Preparation phase and Submission phase of TYNDP 2024 Project submission process)	Publication of TYNDP 2024 Guidelines for Project Inclusion (October 2023) Publication of TYNDP 2024 Project submission Handbook (November 2023) Project submission window (December 2023)	Public consultation. Webinar with project promoters. Consultation with EC/ACER through Cooperation platform. on collected project information.	Preparation of supportive documents and active support of project promoter's during submission phase.
CBA Methodology update to include hydrogen infrastructure	Preparation of ENTSOG Final CBA Methodology for hydrogen infrastructure assessment.	Publication of ENTSOG draft Preliminary draft CBA Methodology (February 2023) Publication of ENTSOG Draft CBA Methodology (June 2023) Implementation of ACER feedback and preparation of Final CBA Methodology	TSOs, ACER, EC	Final CBA Methodology (Process ongoing)
Support to Regional Groups	Assessment of hydrogen infrastructure projects during first PCI/PMI process under revised TEN-E.	Preparation of PS-CBA results of PCI/PMI candidates (Q1–Q2 2023) Preparation and publication of Project Fiches (September 2023)	EC ACER TSOs Project promoters	Support to 1st PCI selection process under revised TEN-E

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
ENTSO-E/ENTSOG consistent and Interlinked Model	Task force Interlinked Model (TF ILM) to review the project assessment methodology based outcomes of the outcomes of the 2021 progress study. TF ILM to develop a dual assessment methodology and electricity and hydrogen integrated model (ongoing).	Testing of cost benefit analysis methodology and dual assessment (completed) Publication of a Progress Report (ongoing)	EC TYNDP Project promotors	Assessment of electrolyser CBA due by the end of march based on interlinked model. Drafting of 2022 Interlinked model progress report ongoing.
TYNDP 2024 scenario development process	Joint scenario development process between both ENTSOs	Final TYNDP 2024 joint scenario report (ENTSOG/ENTSO-E)	TSOs TYNDP 2024 scenarios consulted with EC, ACER, external stakeholders.	Draft Scenario report expected to be published in April 2024
Summer Outlook 2023 with Winter 2023/24 overview	Provide view on injection period ahead	Publication April 2023	TSOs ACER	Completed
Summer Review 2022	Analyse previous summer	Publication April 2023	TSOs	Completed
Winter Outlook 2022/23 with Summer 2024 Overview	Provide view on supply-and-demand balance for winter ahead	Publication October 2023	TSOs ACER	Completed
Winter Review 2021/22	Analyse previous winter	Publication October 2023	TSOs	Completed
System Capacity Map (periodical)	Provide project map and graphic representation of supply-and-demand for past year with updated information on capacities in Europe	Publication January 2024	TSOs	Approved in December 2023 and published in January 2024

Table 2: System Development Work Programme Status

SYSTEM OPERATION

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
TRANSPARENCY				
Data consistency support to TSOs	Ensure a high data completeness and consistency on the TP	ENTSOG staff monitors the integration of data publications daily and reports to the TSOs on a monthly basis.	Gas TSOs	Over the course of the year, data completeness has continuously improved and is stable around 92 %.
Continuous platform improvements	Ensure user friendliness and usability of the published data	In 2023, several new features were implemented. We updated the maps for points and zone, published an overview of Dual Model Points, improved the TP's publication status indicators, published several versions of the FAQ.	Gas TSOs and TP Users	Ongoing
Facilitate required data collection processes	Ensure timely and effective data deliveries	The data for ACER's monitoring obligations were delivered on 21 February 2023.	Gas TSOs, ACER Gas Market Department	Completed
Follow up on REMIT requirements	Ensure proper application of REMIT requirements	Ongoing	Gas TSOs, ACER REMIT department, ACER REMIT User groups	ENTSOG and gas TSOs have actively engaged in a wide range of discussions, Roundtables, Public Consultations (PCs), and the REMIT Forum to make contributions towards the revision of REMIT in 2023. Additionally, ENTSOG and gas TSOs contributed to Public Consultations (PCs) for updates to ACER's REMIT documentation in 2023. ENTSOG is representing the Gas TSOs in ACER's REMIT Expert Group. ENTSOG is registered for the ACER REMIT roundtables of the Association for Energy Market Participants (AEMP); RRMs (registered reporting mechanisms); IIPs&TPs (platforms for disclosure of inside information and transparency platforms). The updated ACER requirements for REMIT implementation have been considered and implemented, if relevant.

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
ENTSOG TP acts as an approved Inside Information Platform (IIP)	Ensure good practice and integrity for publication of inside information as UMMs	ENTSOG TP effectively operates as an approved Inside Information Platform (IIP) for gas infrastructure operators and maintains ongoing communication with the Agency regarding any relevant matters.	Gas TSOs, ACER	Ongoing
Analyse legal transparency requirements coming from EU legislation, including the gas Network Codes	Ensure proper application of the transparency requirements	In 2023, the Gas and Hydrogen Package was monitored. ENTSOG and the gas TSOs provided feedback to the co-legislators during the process of REMIT revision.	Gas TSOs, EC, TP users and other stakeholders	Ongoing
Cooperate with ENTSOG business areas to fulfil transparency requirements coming from relevant NCs	Ensure proper application of the publication requirements	Ongoing	Gas TSOs, other ENTSOG Working Groups, TP users and other stakeholders	Ongoing
Facilitate and support other areas inside ENTSOG with projects concerning TP	Ensure good usage of the available data and functionalities on the TP	the Transparency Working Group supported the Market Area in the discussions referring to presentation of capacities on the Transparency Platform.	Gas TSOs, other ENTSOG Working Groups,	Ongoing
TP users support	Ensure a transparent and user-friendly channels for providing feedback on using the TP	In addition to the stakeholder satisfaction survey, more than 900 questions from TP users were handled by ENTSOG and TSO staff in 2023. We introduced and published several versions of updated FAQs to help users better understand the platform's features, navigate the system more efficiently, and address common queries and concerns.	Gas TSOs, TP users, ACER, EC, and other stakeholders	Ongoing
Public workshop on Transparency	Ensure transparent dialog with stakeholders	The 15th Transparency workshop was held on 15 Marts 2023 at the ENTSOG office in Brussels and with more than 120 participants online.	Gas TSOs, TP users, ACER, EC, and other stakeholders	Completed

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
INTEROPERABILITY AND DATA EXCHANGE				
Follow up on INT NC Implementation Monitoring	Monitor the implementation and functioning of the INT NC	In July 2023, ENTSOG published the Annex 2 of the Implementation Monitoring Report 2021	TSOs, ACER	Completed
Development of the Gas Quality Outlook report	Publish the fourth edition of the Gas Quality Outlook report for the TYNDP 2022	Finished. Publication in Dec 2023	TSOs involvement	Following the timeline of the TYNDP process, the gas quality outlook 2022 was published in 2023
Continue discussion on H_2 quality	1) Gathering information on the gas transmission network readiness to integrate hydrogen 2) Contribute to the development of a CEN Technical specification for H_2 in repurposed system	1) Ongoing 2) Technical Specification TS17977 published in October 2023	TSOs involvement Stakeholders from the H_2 value chain	Set out ENTSOG's current understanding of the opportunities and challenges on increased penetration of hydrogen
Continue discussion on gas quality standardisation with CEN	Cooperate with gas sector on the EN16726 revision. Provide the ENTSOG view on the implementation of the WI classification system proposed by CEN.	Contribute towards the revision of EN 16726 to include WI and H_2 and revise other quality parameters (e.g., oxygen, relative density, etc).	Stakeholders from the whole gas value chain participate in the process	ENTSOG continues cooperating with CEN
Continue discussion on gas and hydrogen quality and handling with industry associations	Cooperate with gas sector regarding gas and hydrogen quality standard, handling and regulation	Ongoing	Stakeholders from the whole gas value chain participate in the process	Marcogaz, EASEE-gas, GERG, GIE, DSOs associations and other industry associations in this field.
Public workshop on GQ & H_2 handling	Dialogue with stakeholders along the gas value chain in the field of gas quality, hydrogen and CO_2	A Gas Quality workshop was held in November 2023	All public could participate	Once per year

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
Smart Grid solution & digitalisation for Gas Quality and H_2 handling	Exploring the possibilities of deploying 'smart gas grid' services to improve the interoperability of systems and technologies	Ongoing	TSOs involved in the process	Ongoing
Follow up on the SoS and technical cooperation	Follow up on the existing ReCo System for Gas as a CNOT for emergency conditions	Ongoing	TSOs	Ongoing
Follow up on technical cooperation with third-country TSOs	Continue cooperating with Energy Community and third-country TSOs	External contact platform meetings twice per year	EnC Secretariat and stakeholders	Ongoing. ENTSOG and EnC Secretariat established a communication channel to be used in case of crisis events
Follow up on data exchange	Organise Data Exchange and Cyber Security workshop	Organised Annual Workshop on Data Exchange and Cyber Security in the gas sector on 17/18 October 2023	ENTSOG, GIE, EASEE-gas, ENISA, ENCS, EDA, TSOs, EC	A hybrid event that combined Data exchange and cybersecurity workshop was held on 17/18 October 2023 in collaboration with ENTSOG, EASEE-gas and GIE held at the ENTSOG offices
Follow up on cybersecurity	Organise (when possible) bi-monthly Cyber security calls with the GIE/ENTSOG Joint Cybersecurity Task Force	Organised two cyber security task force calls.	GIE, ENTSOG, EDA, TSOs, ENISA	Virtual two joint task force calls were held with a range of speakers from ENISA, ENTSOG, GIE etc. The calls were well attended by TSOs and discussed the approaches regarding the NIS 2 directive, CRA and reviewed the threat landscape for the gas sector.
Follow up of EASEE-gas collaboration	Collaborate on CNOT issues and advise on data exchange	Participated and contributed to the EASEE-gas groups: MWDWG & TSWG. Reviewed the current EASEE-gas collaboration model and devised a new framework to be completed 2023.	ENTSOG, EASEE-gas Board/management team and MWDWG & TSWG	Participated in the relevant groups run by EASEE-gas and collaborated on the joint Data exchange and data security workshop. Developed a new EASEE-gas collaboration framework which was signed and completed in July 2023.

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
Continuation of the dialogue with stakeholders on European and national level on security algorithms for AS4 and the development of a new updated AS4 profile.	Establish a common definition of secure security algorithms for AS4 and produce a new version for gas sector adoption with state-of-the-art encryption.	Developed a draft AS4 profile with increased security core.	GIE, BDEW, EASEE-gas, EC eDelivery program, ITC KG	A draft AS4 profile version was developed and shared with the ENTSOG ITC KG for comments. A high-level road map for AS4 profile documentation updates, service provider communication and testing was put in place for 2023.
Review Data exchange CNOTS' readiness for new gases	Initiate a dialogue with relevant stakeholders and create a document that discusses the fit-for-purpose credentials of the current ENTSOG CNOTS when applied to new gases	ENTSOG (ITC KG) completed work drafting an analysis on the suitability of current CNOTs and edig@s® solutions in the context of new gases and will assess if they are fit for purpose.	ENTSOG's ITC KG, EASEE-gas, MWDWG (edig@s®), TSWG, GIE	A final draft analysis was completed which stated that the CNOTs currently in place are fit for purpose for new gases. The document is now ready for further build-out in 2024 with new input from the hydrogen sector.
Operate the Local Issuing Office for the EIC scheme	Management of EIC Codes requests	Ongoing	ENTSO-E, LIOs, EIC users	Ongoing
Cooperation with stakeholders on methane emissions reduction	Share technical expertise and provide support (along with Marcogaz and GERG) to GIE and Eurogas for the development and implementation of the Methane Emissions Regulation	Ongoing	GIE, Eurogas, Marcogaz and GERG within the Methane Emissions Joint Expert Group	Ongoing

Table 3: System Operation Work Programme Status

MARKET

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
BALANCING NETWORK CODE				
Support ENTSOG members with the implementation of the BAL NC	Successful implementation of the BAL NC provisions by ENTSOG members	Ongoing throughout 2023	TSOs	Ongoing
Publish the BAL NC implementation and effect monitoring reports – 2024 edition	Monitor the implementation and effects of the BAL NC	Data collected in 2023 and subsequent content discussion in BAL KG and MAR WG.	TSOs, Market Area Managers and ACER	To be fully published in Q2/2024. An Executive Summary can be found in the respective section of this Annual Report.
Respond to queries from Members and stakeholders on balancing issues	Reply to requests, on topics such as implementation of the BAL NC or good practices in Europe, in a timely manner	Ongoing throughout 2023	TSOs, stakeholders	Ongoing
Develop ENTSOG positions on balancing related issues and respond to consultations and queries from stakeholders	Develop ENTSOG positions on balancing-related issues that can be presented to stakeholders and the wider market, as well as internal material to support other areas	Ongoing throughout 2023	TSOs, stakeholders, ACER	Ongoing
Participation in external events on balancing	Present ENTSOG's positions and results regarding balancing towards external stakeholders	Ongoing throughout 2023	TSOs, stakeholders, ACER	Ongoing

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
TARIFFS NETWORK CODE				
Support ENTSOG members with the implementation of the TAR NC	Successful implementation of the TAR NC provisions by ENTSOG members	Ongoing throughout 2023	TSOs	Ongoing
Publish the TAR NC implementation and effect monitoring report – 2024 edition	Monitor the implementation and effects of the TAR NC	Data collected in 2023 and subsequent content discussion in TAR KG and MAR WG.	TSOs and ACER	To be fully published in Q2/2024. An Executive Summary can be found in the respective section of this Annual Report.
Respond to queries from Members and stakeholders on tariff issues	Reply to requests, on topics such as implementation of the TAR NC or good practices in Europe, in a timely manner	Ongoing through 2023	TSOs, stakeholders	Ongoing
Develop ENTSOG positions on tariff-related issues and respond to consultations and queries from stakeholders	Develop ENTSOG positions on tariff-related issues that can be presented to stakeholders and the wider market, as well as internal material aimed at analysing the evolution of tariffs and revenues	Ongoing throughout 2023	TSOs, stakeholders, ACER	Ongoing
Participation in external events on tariffs	Present ENTSOG's positions and results regarding tariffs towards external stakeholders	Ongoing throughout 2023	TSOs, stakeholders, ACER	Ongoing

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
CAPACITY NETWORK CODES AND CONGESTION MANAGEMENT GUIDELINES				
Support ENTSOG members with the implementation of the CAM NC	Successful implementation of the CAM NC provisions by ENTSOG members	Ongoing throughout 2023	TSOs	Ongoing
Develop the CMP GL and CAM NC implementation and effect monitoring reports covering gas years 2020/2021 and 2021/2022	Monitor the implementation and effects of the CAM NC and CMP GL	CMP Guidelines Implementation and Effect Monitoring Report CAM NC Implementation and Effect Monitoring Report	TSOs	Completed for 2023. Next reports expected in 2025. CMP Guidelines Implementation and Effect Monitoring Report published on ENTSOG website in May 2023. CAM NC Implementation and Effect Monitoring Report published on ENTSOG website in April 2023.
Development of CAM NC auction calendar 2024/2025	Publish the auction calendar for 2024/2025	Auction calendar for 2024/2025 published on ENTSOG website on 18 December 2023	TSOs	Completed in 2023 for 2024/2025 period.
Respond to queries from Members and stakeholders on capacity issues	Reply to requests, on topics such as implementation of the CAM NC or good practices in Europe, in a timely manner	Ongoing through 2023	TSOs, stakeholders	Ongoing
Develop ENTSOG positions on capacity related issues and respond to consultations and queries from stakeholders	Develop ENTSOG positions on capacity-related issues that can be presented to stakeholders and the wider market, as well as internal material to support other areas	Ongoing throughout 2023	TSOs, stakeholders, ACER	Ongoing Response to ACER's consultation on the CAM NC.
Participation in external events on capacity	Present ENTSOG's positions and results regarding capacity towards external stakeholders	Ongoing throughout 2023	TSOs, stakeholders, ACER	Ongoing

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
FUNCTIONALITY				
Support the Functionality Process and any related issues to the Network Codes and Guidelines that arise	Assist with operation of the Functionality Process	Ongoing	Stakeholders, TSOs, ACER	In 2023 issue solutions for two issues have been proposed by ENTSOG and ACER.
MARKET ASSESSMENT				
Evaluate any proposed changes to the current regulatory framework in the EU gas sector or legislation potentially impacting it and provide feedback.	Ensure that the stakeholders (including the EC) are aware of ENTSOG's positions and views regarding the legislative and policy proposals developed for the EU gas sector	Ongoing throughout 2023	TSOs, EC, stakeholders	Ongoing
Provide opinion and/or responses on issued reports, public consultations, and papers.	Support members and stakeholders	Ongoing through 2023	TSOs	Ongoing Feedback provided in 2023 via Market Area and Working Groups on – for example: Response on ACER consultation on CAM NC revision. Response on EC study on energy integration. Response on Electricity Market Design consultation. Response on CCUS consultation

Table 4: Market Work Programme Status

STRATEGY, POLICY AND COMMUNICATION

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/Comments
External Engagements	Engage in the European Clean Hydrogen Alliance's Roundtable on Clean Hydrogen Transmission and Distribution	Q1–Q4 2023	TSOs	Established and ongoing
Communication proposals	Provide recommendations on ENTSOG's priorities in dialogue with the European Commission, Parliament and ACER. Propose external and internal communication. Engage in dialogue with industry, gas and other key EU stakeholders	Ongoing throughout 2023	TSOs	Ongoing
Information sharing	Provide information material to TSOs in their discussions on gas regulatory framework held at national level. Report to Members on all ENTSOG bilateral, multilateral and public engagements	Throughout the whole 2023	TSOs	Ongoing

Table 5: Strategy, Policy and Communication Work Programme Status

Picture courtesy of Enagás

Picture courtesy of TAP

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SYSTEM OPERATION:

SECURITY OF SUPPLY, REMIT, TRANSPARENCY AND INTEROPERABILITY

The primary work of the System Operation business area includes developing and monitoring technical network codes, evaluating activities related to gas quality standardisation, developing and maintaining existing Common Network Operation Tools (CNOT), the ReCo System for Gas and the exchange of information on security of supply, and the maintenance and continuous development of ENTSOG's Transparency Platform (TP), including activities referring to REMIT.

In 2023, System Operations comprises two main working groups: Interoperability (INT WG) and Transparency (TRA WG).

WORK STRUCTURE

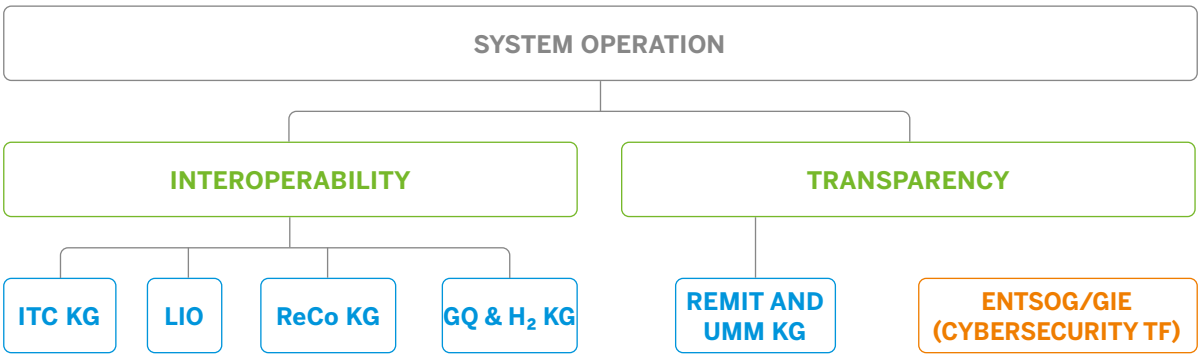

Figure 2: Interoperability and Transparency Working Groups and associated KGs/TFs

INTEROPERABILITY

The Interoperability Working Group (INT WG) monitors the implementation of the INT NC and oversees the work of the groups mentioned below.

ENTSOG Members' work on interoperability topics is structured around the following groups within the System Operation area:

- The Regional Coordination System for Gas KG (ReCo KG) includes four ReCo Teams: Europe, North-West, East, South and focuses on operational and dispatching cooperation for the security of gas supply.
- The Information Technologies and Communications KG (ITC KG) develops and maintains the ENTSOG Common Network Operation Tools (CNOTs) for normal conditions, as stated in Art. 24 of the INT and Data Exchange NC, including Business Requirement Specifications (BRS), Implementation Guidelines and communication profiles (edig@s®). Furthermore, the ITC KG is working in collaboration with other European organisations (e.g., ENISA, ENCS, EC eDelivery/DEP, GIE, EASEE-gas-MWDWG, TSWG), on new developments and specifically with the EC eDelivery programme in developing a new version and state of the art AS4 communication protocol to ensure safe and secure communication in the gas sector by updating the ENTSOG AS4 profile. The group discusses questions and aspects related to the implementation and application of the requirements of INT NC related to the standardized data exchange and FUNC related issues regarding data exchange.
- The Cyber Security Task Force is jointly managed by GIE and ENTSOG. The Task Force reviews how to best position the gas industry from potential cyber-attacks by reviewing topics such as: Active input for NIS 2.0, Cyber resilience act software certification scheme, create awareness for Cyber security best practices and maintaining an open exchange with stakeholders regarding a resilience plan for vulnerable infrastructure.

- The Gas Quality and Hydrogen KG (GQ & H_2 KG) provides expertise, support, and proposals on ENTSOG activities related to gas quality while also building ENTSOG vision on the technical aspects of hydrogen injection. Additionally, it coordinates the cooperation with CEN, Marcogaz, EASEE-gas, and GIE. It also prepares the TYNDP Gas Quality Outlook reports. The ENTSOG team and Members contribute with inputs and expertise for the development of recommendations to facilitate the ongoing processes related to Gas Quality and Hydrogen standardisation in CEN, including establishing basic rules and procedures needed for the implementation of a Wobbe-Index classification system, based on the proposal developed by CEN SFGas *"Pre-normative Studies of H-Gas quality parameters"* (CEN SFGas GQS). The GQ & H_2 KG is also a platform to exchange information between TSOs regarding GQ topics.
- ENTSOG is managing LIO (Local Issuing Office) office *"21"* that is authorised by the CIO to issue EICs with international significance for gas entities and infrastructure in Europe. ENTSOG's LIO (together with other LIOs managed by several European gas TSOs) collaborate on EIC related topics via ENTSOG LIO TF. Furthermore, the ENTSOG LIO and the LIOs managed by the gas TSOs cooperate with the Central Issuing Office (CIO) managed by ENTSO-E for harmonising the EIC-related process rules and exchange of experience. Representing all gas TSOs' LIOs, ENTSOG participates in discussions of ENTSO-E's Gas Role Models/Harmonised Electricity Market Role Model harmonisation group and provides technical input for amending EIC functions and role models' definitions.

These groups meet monthly (and ad hoc, as required) and are composed of participants representing Member TSOs across Europe.

TRANSPARENCY

The Transparency Working Group (TRA WG) ensures compliance with the transparency requirements and is supported by the REMIT Kernel Group (KG), following the activities in ACER's RRM User Group, ACER's REMIT Expert Groups, ACER's Roundtables for transaction reporting and inside information disclosure, and general REMIT developments. TRA WG meets monthly and REMIT KG at least twice per month and ad hoc as required and comprise participants representing Member TSOs across EU Member States.

ACTIVITIES

SECURITY OF SUPPLY AND REGIONAL COOPERATION

REGIONAL COORDINATION SYSTEM FOR GAS (RECO SYSTEM)

In 2017, Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply came into force. It states that the regional cooperation should be complemented gradually with a stronger European perspective and overview, allowing recourse to all available supplies and tools in the entire internal gas market. Regional cooperation and coordination between TSOs play an important and significant role in security of gas supply, handling emergencies, and helping to minimise negative effects. To address the above-mentioned objectives, EU TSOs, under the umbrella of ENTSOG, have established specific ReCo Teams. Each ReCo Team is a community of TSOs for one of the supply corridors, which are explained in Reg. (EU) 2017/1938: *"Union gas supply routes that help Member States to better mitigate the effects of potential disruption of supply or infrastructure"*.

ReCo Teams can provide operational expertise on an ad-hoc basis to the concerned TSOs in case of a crisis or need to provide relevant information, via ENTSOG to other stakeholders such as the Gas Coordination Group (GCG), the EC, and the Member States.

Throughout 2023, the 'ReCo Team Europe', comprising TSOs from both EU and non-EU countries, held weekly calls until April, after which they convened monthly joint calls to monitor gas market behaviour, gas flow patterns, underground storage facility utilization, and exchanged information concerning potential risks to the security of gas supply. The outcomes of these calls were communicated to the EC, ACER, the Energy Community Secretariat, and EFET.

Additionally, ENTSOG and TSOs undertook two tabletop exercises to test the gas system's flexibility and readiness to face significant supply disruptions in February and March. The results of the exercises showed that the TSOs' systems are ready to tackle the disruptions, despite some identified challenges.

CHANGE IN GAS FLOW PATTERNS AND DIVERSIFICATION OF SUPPLY SOURCES

In 2023, new LNG infrastructure facilities were commissioned, enhancing Europe's security of gas supply and the flexibility of the gas transmission system. These included:

- FSRU Baltic Energy Gate (Port) FSRU Lubmin in Germany, with initial flows starting in January 2023.
- FSRU Inkoo in Finland, with initial flows starting in March 2023.
- FSRU Brunsbüttel in Germany, with initial flows starting in March 2023.
- FSRU Piombino in Italy, with initial flows starting in May 2023.
- LNG terminal Musel in Spain, with initial flows starting in July 2023.
- FSRU La Havre in France, with initial flows starting in October 2023.
- FSRU Lubmin in Germany, with initial flows starting in January 2023.
- FSRU Inkoo in Finland, with initial flows starting in March 2023.

Other developments took place to strengthen gas system flexibility and the security of gas supply, including since April 2023, IP Strandzha has been used for transporting gas from Turkey to Bulgaria.

In November 2023, Bulgartransgaz EAD and the Serbian Srbija d.o.o. signed an interconnection agreement for the new IP Kalotina/Dimitrovgrad, although the first flows were only observed in 2024.

TSOs increased technical capacities at IP Kiemenai (Latvia–Lithuania), IP Csanadpalota (Hungary–Romania), IP Santaka (Poland–Lithuania), IP Kulata (BG)/Sidirokastron (GR) (Bulgaria–Greece), VIP Pirineos (France–Spain), IP Wallbach/VIP Germany–CH (Germany–Switzerland).

During 2023, the market actively injected gas into gas storage facilities, reaching a filling level of 99.6 % by the end of the injection season with 1135 TWh in storage on 6 November 2023. Additionally, around 3,2 bcm (~37 TWh) of gas were injected into Ukrainian storage facilities.

During 2023, ENTSOG was closely monitoring gas flow patterns and observed that gas flows from Norway were close to the maximum level, with fluctuations due to maintenance works, especially during May-September, resulting in reductions of around 1600 GWh/d on some days. Total gas supply from Norway accounted for approximately 30 % of all total supply from non-EU sources.

There were no extreme changes in gas flow patterns via LNG to the EU in 2023. However, considering new FSRUs in Germany, LNG flows to Germany were significantly higher than in 2022. LNG supply to the EU represented 40 % of the total supply from non-EU sources in 2023.

Gas flows from Azerbaijan via TANAP-TAP typically ranged from 300 to 400 GWh/d, with the majority destined for Italy and the remainder transported to Greece and Bulgaria, with possible further flows towards Romania and Serbia.

Flows from North Africa towards Italy and Spain reflected market behaviour and capacity availability, fluctuating between 600–1200 GWh/d.

Gas flow patterns between the UK and the EU followed the gas market activity, with predominant flows from the UK to Belgium via the Interconnector, and from the UK to the Netherlands via the BBL pipeline during April-September. Occasional reverse flows to the UK were also observed, albeit at lower levels.

Regarding flows from the East Corridor, Gazprom's transit towards Slovakia and Moldova via Ukraine was initially lower in the beginning of the year but gradually increased to around 400–450 GWh/d. During the summer, EU shippers regularly transported gas to Ukraine for injection into Ukrainian storage facilities, with part of these volumes withdrawn back to the EU in November–December.

In 2023, Moldova continued its activities in managing gas supply from the EU, with regular direct flows from Romania and from other EU MSs via Ukraine.

After the commissioning of the Inkoo LNG Terminal in Finland, regular flows from Finland to supply Estonia and Latvia were observed, along with injections into storage facilities in Latvia.

In 2023, TSOs successfully managed their grid operations despite various challenges to security of supply such as a pipeline rupture in Lithuania, strikes at LNG facilities in France, the shutdown of Groningen gas field production, and damage to the Balticconnector pipeline. This demonstrates the resilience of the European gas system.

ENTSOG SYSTEM OPERATION SECURITY OF SUPPLY ASSESSMENTS

In 2023, ENTSOG and TSOs continued to systematically analyse and monitor planned and unplanned maintenance works and to cooperate closely with each other in coordinating and synchronising the maintenance on their networks in order to minimise any disruption of transmission services.

Gas TSOs and the gas market succeeded in navigating many hurdles, to assist meeting consumers' gas demand, enabling transportation to and from underground gas storage facilities, ensuring a high storage filling level, and commissioning new infrastructure projects to satisfy the requirement for new supply sources.

SUPPORT TO THE EC IN TERMS OF SECURITY OF SUPPLY

The ENTSOG team continued cooperating closely with the EC and participated in the scheduled GCG meetings in 2023. The outcomes of the regular *"ReCo Team Europe"* calls were communicated to the EC, ACER, and Energy Community.

On a weekly basis, ENTSOG provided operational and system-development expertise during the year, in particular with its observations of the gas flows' patterns, fluctuations of the gas flows and usage of TSOs capacities, gas storage filing levels, updates about commissioning of the infrastructure projects, information about events with risks to the security of gas supply, defined threats, and communicating findings during the tabletop exercises.

ENTSOG presented to the GCG and the EC their simulations, assessments, and reports as requested. More details on these can be found in section **"Support to Gas Coordination Group and European Commission" (Page 53)**.

Picture courtesy of Gasum

RECOMMENDATIONS ON TECHNICAL COOPERATION WITH THIRD COUNTRIES.

In 2018, ENTSOG adopted *"Recommendations relating to the coordination of technical cooperation between Community and third-country transmission system operators"* ("Third-country TSOs")[1].

The document describes the three key areas of technical cooperation: Security of Supply and the ReCo System, Expert Knowledge on Interoperability, and the External Contact Platform. Furthermore, the criteria to categorise third country TSOs have been developed and the corresponding groups identified: Energy Community and EFTA countries, countries with specific agreements to accommodate or implement EU legislation, and others. For each category, different recommendations for the key areas of cooperation are given.

ENTSOG and the TSOs followed the provisions of the document. Together with the Energy Community Secretariat, two meetings with third country TSOs were held in 2023 within the framework of the External Contact Platform to exchange expert knowledge and deepen further cooperation.

In 2023, ENTSOG invited TSOs from non-EU countries to participate in several workshops and conferences on the relevant processes and developments in the EU gas transmission sector. Non-EU TSOs (from the ReCo Teams) and Energy Community Secretariat also took part in regular daily *"ReCo Team Europe"* calls.

ENTSOG and the Energy Community Secretariat continued to exchange information and support coordination between EU and non-EU TSOs. Cooperation with the Energy Community Secretariat was added to the Regional Coordination System for Gas as a common network operation tool to ensure coordination of network operation in emergency conditions.

1 in accordance with Article 8.3(c) Regulation (EC) No 715/2009

INTEROPERABILITY AND DATA EXCHANGE

INTEROPERABILITY AND DATA EXCHANGE NETWORK CODE

As required by the reporting obligations of Article 8(8) of Regulation (EC) No 715/2009 and Article 25 of the INT NC, ENTSOG published in July 2023 the Annex 2 of the Implementation Monitoring Report 2021,which included a detailed assessment of Interconnection Agreements' compliance with the Interoperability and Data Exchange Network Code for a list of IPs selected and agreed between ENTSOG and ACER. The detailed assessment includes 11 IPs – 4 new IPs established in 2022, 1 existing IP with a technical change enabling a reverse flow option, and 6 Virtual Interconnection Points (VIPs) – (3 VIPs launched in 2022 and 3 VIPs established earlier). The recently launched IPs and VIPs indicate large-scale changes – gas supply diversification and market zones harmonisation – that are occurring on the European gas market.

The analysis confirms that Europe continues adapting to the fast-changing situation on the gas market, improving cooperation and harmonisation on the main terms and conditions envisaged in the INT NC. With only a few minor procedures that are still in progress, all analysed IPs are operated in accordance with the INT NC requirements.

Additionally, considering the development of the Hydrogen and decarbonised gas market package, ENTSOG has performed a technical analysis on the possible impact that upcoming provisions may have on the tasks and activities of TSOs in Interoperability areas such as Gas Quality, Data Exchange, Security of Supply and Solidarity, etc.

UPDATES OF CNOTs

In 2023, ENTSOG continued to improve the common network operation tools (CNOTs), with special attention to the AS4 communication profile.

The ENTSOG AS4 profile update: The EC eDelivery Digital Europe Programme (DEP) is working on an update to their AS4 communication protocol (on which the ENTSOG profile is based) to improve core security features. On that basis, ENTSOG chose to work in conjunction with this activity to ensure that the ENTSOG profile has the necessary updated security features to safeguard the gas sector's communication for the next five to ten years.

The AS4 profile provides not only interoperability guidance for the required AS4 functionality (i.e., which requirements are mandatory or optional) but also security guidance based on state-of-the-art best practices following ENISA recommendations and best practices implemented by the EC eDelivery programme. The DEP project is on track to deliver a new AS4 profile definition after many rounds of consultation and feedback involving the EC and ENTSOG contributions which is scheduled to be completed and piloted in 2024.

FOLLOW-UP OF EASEE-GAS DEVELOPMENTS

ENTSOG cooperated closely with EASEE-gas in 2023 on data exchange as a participant in the relevant EASEE-gas groups: The Message Workflow and Design Working Group and the Technology Standards Working Group.

On the basis of the collaborative work undertaken in 2023 and as described in the previous section, ENTSOG, EASEE-gas and GIE organised and held the 3rd edition of their joint workshop on data exchange and cybersecurity in 2023.

In 2023, ENTSOG and EASEE-gas started to develop a framework for a deeper collaboration in data exchange and cybersecurity. This work continued in throughout 2023 and the framework was successfully completed and signed in July 2023.

OPERATION OF THE LOCAL ISSUING OFFICE (LIO)

Energy Identification Codes (EIC), governed by ENTSO-E, provide a unique identification of infrastructure objects and entities active within the Internal European Energy Market. EICs are widely used in Electronic Data Interchange to identify parties and objects in the processes related to data exchange, transparency and REMIT. ENTSOG operates a Local Issuing Office (LIO) responsible for the EIC scheme operations. In 2023, ENTSOG continued cooperating with ENTSO-E via the joint Central Issuing Office (CIO)/LIO meetings and contributed in harmonising EIC functions' definitions and addressing challenging issues caused by the changing gas flows in the European gas market. In addition, ENTSOG maintained its participation in discussions of ENTSO-E's Gas Role Models/Harmonised Electricity Market Role Model Harmonisation Group and provided technical input for amending definitions of roles and EIC functions.

ANNUAL WORKSHOP ON DATA EXCHANGE AND CYBER SECURITY

In 2023, ENTSOG organised a two day hybrid, annual Workshop covering data exchange and cybersecurity topics. The workshop presenters consisted of multiple experts from: EC, EDA, ENTSOG, ENISA, ENCS, GIE, EASEE-gas, service providers and several TSOs and shippers. These experts presented on a range of data exchange issues such as ENTSOG CNOTS "in action", AS4's new security features and practical implementations of edig@s® from different user perspectives.

On the first day, the main themesof the Data Exchange session included AS4 and edig@s® xml rationale and benefits of adoption and a review of the CNOTS for new gases. The second day was dedicated to cybersecurity topics and included themes on the cybersecurity threat landscape, international cybersecurity perspectives and an introduction to the ENISA cybersecurity awareness package. The workshop included an interactive session at which the workshop participants were asked their opinion on the topics that had been presented. The hybrid workshop was well attended by almost 100 participants, 22 countries and 27 gas TSOs and multiple NGOs and service providers. All presentations and summary notes are available on ENTSOG's event webpage.

GAS QUALITY AND HYDROGEN ACTIVITIES

COOPERATION WITH CEN AND MARCOGAZ AND EASEE-GAS

In 2023, ENTSOG continued its active cooperation with CEN, Marcogaz and EASEE-gas on the topics of gas quality, and renewable and low-carbon gases. Concerning CEN activities, ENTSOG was actively involved in CEN TC234 WG11 for the revision of the H-gas quality standard, EN16726, and participated in task forces related to Hydrogen content, Wobbe Index and O_2. ENTSOG also contributed to the WG 11 activities for the elaboration of a technical specification on H_2 quality in repurposed systems. The specification proposed by WG11, TS 17977, was approved and published at the end of 2023.

Additionally, ENTSOG was actively involved in the Gas Quality Harmonization WG of EASEE-gas and the Gas Quality WG in Marcogaz.

HYDROGEN IN THE TRANSMISSION SYSTEM

In 2023, ENTSOG continued it focus on assessing the possibilities to inject hydrogen into the transmission system via internal assessments among ENTSOG Members and the ENTSOG team. This is to further progress in assessing the tolerance for different levels of hydrogen concentration in the gas grid system and analyse the feasibility and verification of all pathways (hydrogen backbone, methane backbone, and hydrogen/methane blended networks).

Furthermore, to support the cost-effective integration of renewable and low carbon gases such as biogas, biomethane, and hydrogen in the network in accordance with consumers' needs and gas quality requirements, ENTSOG remains committed in continuing its work in analysing the possibilities of deploying smart grid solutions and digital tools for gas quality and hydrogen handling. This could include digital systems for online gas quality tracking and forecasting, sensor technologies for interactive and intelligent metering, among others. In this context, ENTSOG participated in some meetings of the Smart Gas Grid Thematic Area Group of the EC.

ENTSOG continued its dialogue with stakeholders along the gas value chain in the field of gas quality and hydrogen and delivered a workshop in November 2023.

In addition, ENTSOG also contributed to the work carried out in the Marcogaz H_2 TF, and proposed a supplementary chapter in the report Marcogaz developed for the study "Cost estimation of hydrogen admission into existing natural gas infrastructure and end use". The ENTSOG statement included in the report provided qualitative considerations on retrofitting/repurposing gas grids for the transport of hydrogen blends and 100 % hydrogen. More information about ENTSOG contribution to the Marcogaz study can be found in section **"Development of Regional Coordination System for Gas (ReCo) 2.0 Platform" (Page 81)**.

ENTSOG is also part of the Supervisor Stakeholders' Group of the Clean H_2 partnership, which met several times in 2023.

STANDARDISATION WORK FOR CO_2 TRANSPORT

In 2023, ENTSOG also followed and participated in discussion fora for the development of CO_2 stream composition standards for the transport of CO_2 in pipelines. One of the workstreams is the expert group on CO_2 specifications/standards included in the working group established by the European Commission on CCUS infrastructure part of the CCUS Forum.

METHANE EMISSIONS REDUCTION

The new Methane Emissions Regulation has reached provisional agreement between the European Parliament and the Council on 15 November 2023. ENTSOG has actively supported the EC's initiative for the reduction of methane emissions by providing technical recommendations for the development of the Regulation and by sharing technical expertise to facilitate its implementation. ENTSOG's work is undertaken within the Methane Emissions Joint Expert Group where ENTSOG (along with Marcogaz and GERG) is providing technical support to GIE and Eurogas for the development of proposals.

CYBERSECURITY

ENTSOG has collaborated with GIE on the Joint ENTSOG/GIE Cyber security Task Force to build a common understanding on the key areas of policy as identified by the EC regarding the new NIS 2.0 Directive, Cyber Resilience Act (CRA), and The Critical Entities Resilience Directive (CER) and a potential Network Code on cybersecurity for the gas sector.

ENTSOG also engaged with ENISA to provide gas TSOs (in 2023) a "train the trainer" programme which has been developed by ENISA. The mission is to raise awareness on cybersecurity issues in the gas community by running cybersecurity hands-on workshops which will progress cybersecurity knowledge acquisition. ENTSOG also worked alongside the European Defence Agency in preparing an international physical tabletop exercise for the energy sector where both physical and cybersecurity injects were prepared.

ENTSOG (ITC KG) has embarked on discussions with several systems' providers of malware information sharing platforms with a view to potentially offering ENTSOG Members a more proactive method of cyber-attack information dissemination. This work has been evaluated in 2023.


Picture courtesy of Astora

ENTSOG TRANSPARENCY PLATFORM (TP)

ENTSOG's Transparency Platform (TP) provides technical and commercial data on the gas transmission systems, which includes relevant points, such as interconnection points and connection points of the transmission systems with storage facilities, LNG terminals, distribution networks, final consumers and production facilities depending on the NRA decision. The current version of ENTSOG TP was launched on 1 October 2014. It was developed with the aim of improving transparency, user friendliness and data publication capabilities. It is a powerful tool providing the means for ENTSOG's Members and Associated Partners to fulfil their data publication obligations[1]. Observers are also invited to publish data voluntarily on the TP. ENTSOG received strong support from many stakeholders with regards to TP functionality and the information provided therein. ENTSOG's Transparency Platform consistently serves as a vital data source for a wide range of internal and external users under many different circumstances, consequently generating a significant number of user inquiries.

The Transparency Platform is available at this link: **https://transparency.ENTSOG.eu/**

RELEASED FUNCTIONALITIES AND IMPROVEMENTS

Developments during 2023 included:

- Several updates of the FAQ Updated maps for points and zone
- Overview of Dual Model points in Germany
- Continuous archiving of old published data with timeframe beyond the scope of legal obligations
- Publication of New Relevant Points

ENTSOG TP as Inside Information Platform

Since 1 October 2014, a solution for publishing Urgent Market Messages (UMMs) has existed on the ENTSOG TP. In 2021, ENTSOG updated the format for the UMMs to comply with the changed layouts published by ACER.

Publications of inside information via UMMs is open to ENTSOG Members, Associated Partners, Observers, Booking Platforms, and Market Area Managers. These users utilise a SharePoint form for creating new (versions) of the UMMs as well as an XML solution to transmit the information to the ENTSOG TP automatically.

In 2023, ENTSOG Transparency Planform effectively operates as an approved by ACER Inside Information Platform (IIP)[2].

TP User support

ENTSOG organised the 15th Annual Public Transparency Workshop on 15 March 2023 in hybrid format. The workshop was organised in two sessions dedicated to the following topics:

The first session tackled the ENTSOG Transparency and Transparency Platform where participants received the following updates:

- Functionality updates during 2021 and 2022
- Updated TP Documentation
- Feedback collected from users and ideas for future improvements
- New operators:
  - Challenges for starting publications and lessons learned.
  - How are users informed about new operators.

The second session focused on REMIT, and the lessons learned after six years of data reporting and changes related to the latter:

- Quality of reported data versus planning for implementing updates with a moving target
- ENTSOG TP as Inside Information platform – for whom and why?
- Relevance of CEREMP
- Backup setup with GIE
- Italian methodology on Inside Information thresholds for gas

All presentations and summary notes are available on **ENTSOG's website**.

Beyond conducting a stakeholder satisfaction survey, ENTSOG staff addressed over 900 inquiries from TP users in 2023. To assist users in comprehending the platform's functionalities, improving system navigation, and tackling frequent questions and issues, multiple updated versions of FAQs were introduced and made available.

1 https://ENTSOG.eu/sites/default/files/2023-01/INT2424_22_DE and CS joint workshop 2022_11_03 Final_0.pdf

See Chapter 3, Annex I, Regulation (EU) No 715/2009. Additional obligations for transparency publications are laid out in the Tariff, Capacity Allocation Management and Interoperability Network Codes

2 https://www.acer-remit.eu/portal/list-inside-platforms

TP USAGE, STAKEHOLDER INVOLVEMENT AND DATA PUBLICATION

ENTSOG and TSOs work closely together to achieve the highest quality and comprehensiveness of the data published on the platform. To satisfy and serve the market expectations of data quality and transparency, an internal monitoring process is established to facilitate the joint efforts of ENTSOG and its Members

This process is continuously evaluated and updated, to keep up with the constant changes in functionalities and publication requirements.

Besides TSO publications, ENTSOG is also supplying the EC and ACER with customised reports for specific tasks.

TP Usage statistics

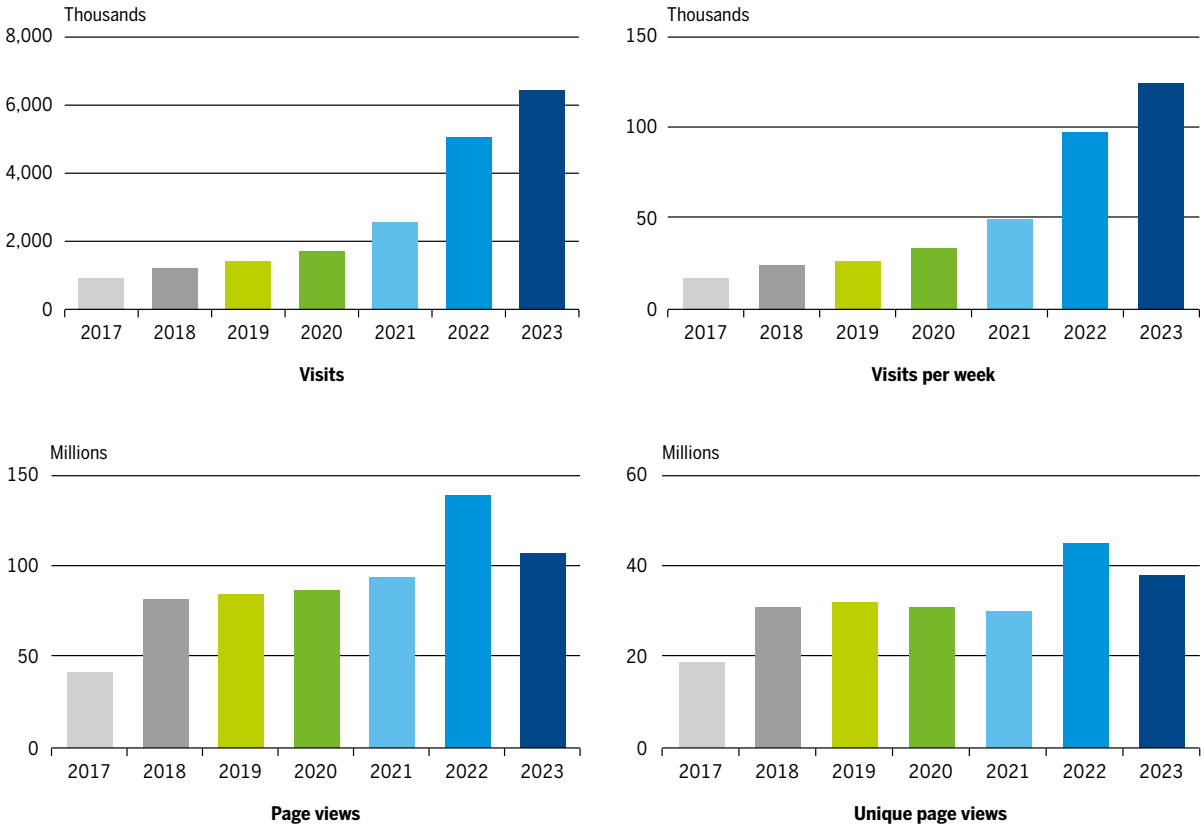

Figure 3 and 4: Visit and page view statistics

The number of visits has increased to a total of 6,450,469 in 2023 and to 124,047 for the average amount of visits per week.

Compared to 2022, the number of page views has decreased to a total of 107,459,716 in 2023, with a 22.4 % decrease in the total number of unique page views in 2023. It should be noted that API calls for fetching data from the TP GUI are also counted as page views.

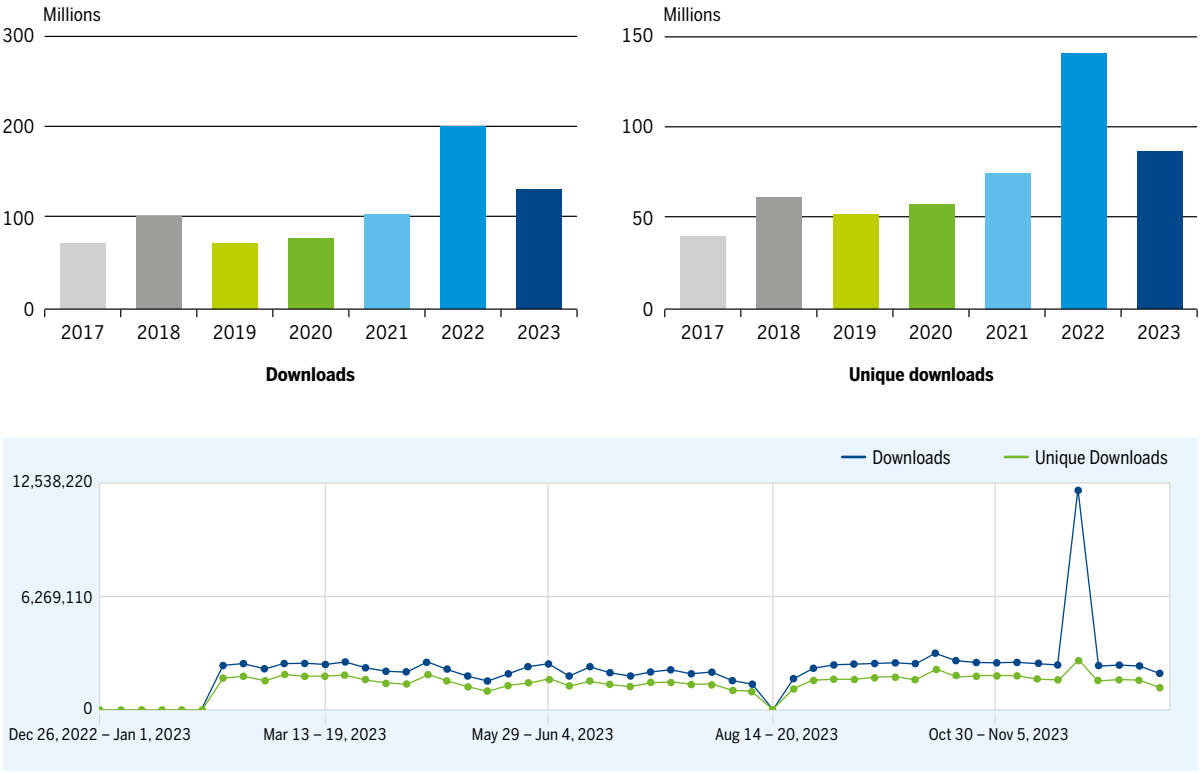

Figure 5 and 6: Downloads statistics

The number of downloads[1] has decreased compared to 2022, to a total of 130,776,775 in 2023 and a decrease to 86,509,981 for the total number of unique downloads in 2023.

In 2023, users of TP were retrieving data from the TP through GUI-based as well as dedicated API calls.

Although there is a downturn compared to 2022 – a year marked by exceptional circumstances – the upward trend remains. This underscores the ENTSOG's Transparency Platform's significance as an important data source for a wide range of both internal and external users, reflecting a steady interest.

Python Requests

In 2023, ENTSOG witnessed an increased interest in querying TP data via Python scripts. This has required reconfiguration of the cloud infrastructure thus ensuring the load balancing of the systems for sufficient throughput for all users.

1 The line graph related to the Downloads and Unique Downloads starts from 6th of March 2023. The noticeable peak in the Downloads graph on 3rd of December resulted from an additional data request needed for the development of the ReCo System for Gas.

Picture courtesy of Swissgas

REMIT ACTIVITIES

Regulation (EU) No 1227/2011 Regulation on Energy Market Integrity and Transparency (REMIT) establishes rules prohibiting abusive practices affecting wholesale energy markets and providing more transparency regarding price-relevant (inside) information. It provides for the monitoring of wholesale energy markets by the ACER in close collaboration with NRAs. The goal of REMIT, through strong cross-border market monitoring, is to detect and avoid market manipulations and to facilitate the completion of a fully functioning, interconnected and integrated internal energy market.

EC Implementing Regulation (EU) No 1348/2014 stipulates the information that is required to be reported and defines the rules to be followed by the market participants with regards to their REMIT reporting to ACER.

ENTSOG's ACTIVITIES AS RRM

Since 2015, ENTSOG has been a Registered Reporting Mechanism (RRM) as required by the REMIT regulation. On behalf of gas TSOs, ENTSOG reports **aggregated fundamental** data to ACER with regards to the capacity and use of facilities for the transmission of natural gas, including planned and unplanned unavailability of these facilities[1].

The ENTSOG reporting system was established in line with EC Implementing Regulation (EU) No 1348/2014 and additional documentation from ACER regarding REMIT. Starting on 7 October 2015, ENTSOG has consistently provided ACER with a comprehensive set of aggregated fundamental data for each TSO publishing on the ENTSOG Transparency Platform. This data includes aggregated day-ahead nominations, aggregated final re-nominations, actual physical flow, technical capacity, available firm capacity, contracted firm capacity, total interruptible capacity, available interruptible capacity, contracted interruptible capacity, planned interruption of interruptible capacity, actual interruption of interruptible capacity, planned interruption to firm capacity, and unplanned interruption to firm capacity.

1 as defined in Article 9 (1) of Commission Implementing Regulation (EU) No 1348/2014

ENTSOG submits the necessary data to ACER's REMIT Information System (ARIS) exactly as it was received on the TP. Regarding data reporting conducted by ENTSOG on behalf of gas TSOs, ENTSOG provides its members with segregated access for each TSO to report files submitted to ACER's Reporting Information System for Applying REMIT (ARIS), segregated access for each TSO to return receipts received by the ENTSOG Reporting system from ARIS, and a daily report for each TSO on the status of files reported to ACER.

Within the REMIT Reporting process, ENTSOG's duties include submitting data from ENTSOG TP to ARIS and rectifying and (re)submitting data in the event of technical reporting issues between ENTSOG and ARIS.

Given ENTSOG's responsibilities, the TSOs are tasked with ensuring complete, high-quality, and timely data publications on the ENTSOG Transparency Platform, keeping track of information provided by ENTSOG about data reported on behalf of TSOs to ARIS. Should ACER reject TSO REMIT data for content or functional reasons, the affected TSO is required to resend the pertinent information to ENTSOG TP, which will then be relayed to ACER through the ENTSOG Reporting System. TSOs' Implementation of REMIT reporting EC Implementing Regulation (EU) No 1348/2014 stipulates that gas TSOs are required to report the following disaggregated information per market participant to ACER:

- Transaction data: natural gas transportation contracts within EU between two or more locations or bidding zones, concluded because of a primary explicit capacity allocation by or on behalf of the TSO, specifying physical or financial capacity rights or obligations.
- Fundamental data: day-ahead nominations, final re-nominations of booked capacities, specifying the identity of the market participants involved, and the allocated quantities.

The TSOs reporting obligations under REMIT commenced on 7 April 2016.

To assist the TSOs with their continuous obligations under REMIT, ENTSOG undertakes several initiatives, including conducting regular discussions on REMIT at Transparency Working Group meetings and arranging ad hoc discussion sessions that bring together ENTSOG's Transparency Team, TSOs, and ACER.

During 2023, ENTSOG Transparency Team and Transparency Working Group participated in the following events:

- ACER REMIT Expert Group meetings
- ACER RRM User Group meetings and Roundtables
- ACER ENTSOG TSOs' ad-hoc stakeholder discussions
- ACER Roundtables on inside information disclosure and REMIT reporting for AEMPs, IIPs and OMPs
- ACER Public consultations on its REMIT data reporting guidance.
- EC public consultations on REMIT recast

ENTSOG and the gas TSOs liaised with the three co-legislators to provide feedback and recommendations in relation to the revision of REMIT regulation.

Picture courtesy of Enagás

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SYSTEM DEVELOPMENT SCENARIOS AND INFRASTRUCTURE

The System Development business area covers ENTSOG activities related to scenario development, investment planning and infrastructure assessment for the EU energy system. The main deliverables are short and medium to long-term assessments such as the joint Scenario Report, the Ten-Year Network Development Plan (TYNDP) and Supply Outlooks. In addition, the ENTSOG maps show commitment to transparency and to providing stakeholders with easily accessible and high added-value information. All these deliverables aim at developing a vision of the integrated European energy market and in particular its infrastructure component. This vision is especially important in view of completing the pillars of European Energy Policy to achieve the European energy and climate targets and commitments of the Paris Agreement, the EU Green Deal, and the REPowerEU Plan.

WORK STRUCTURE

The activities within the System Development Area are managed via the Scenario Working Group (SCN WG) and the Investment Working Group (INV WG) and supplemented by the Network Model Kernel Groups (NeMo KG).

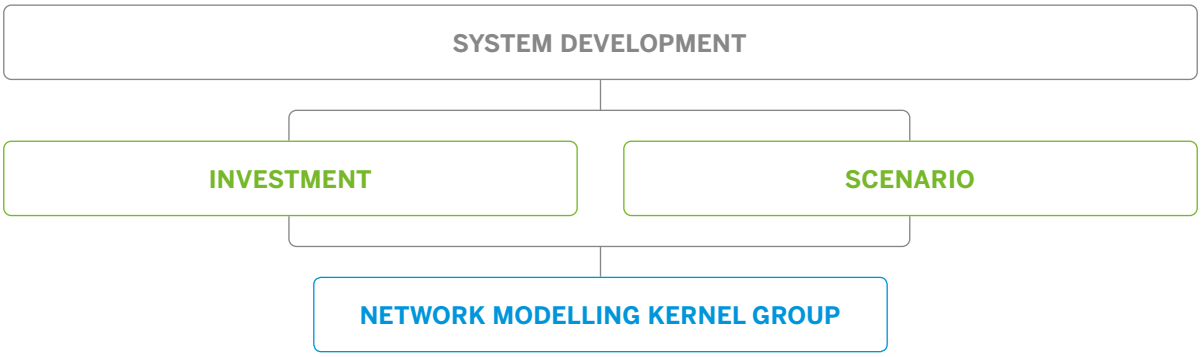

Figure 8: Investment and Scenarios Working Groups and associated KG

As shown above, the Working Groups (WGs) are supported in their objectives by the Network Modelling Kernel Group (NeMo KG), which was established to develop and enhance ENTSOG's modelling tool and perform the simulations for ENTSOG deliverables in accordance with defined Scenarios for TYNDP.

INVESTMENT

The Investment Working Group (INV WG) is responsible for developing regulatory deliverables such as: The Union-wide Ten-Year Network Development Plan (TYNDP), the Winter and Summer Outlooks and the implementation of ENTSOG Cost-Benefit Analysis (CBA) Methodology, including the joint gas and electricity projects CBA methodology (as part of the Interlinked Model). It is also responsible for non-regulatory deliverables such as: Winter and Summer reviews, the Transmission Capacity Map and the System Development Map developed in collaboration with Gas Infrastructure Europe (GIE). To produce the above-mentioned deliverables, INV WG is supported by the NEMO KG, that produces and analyse simulation results.

The INV WG meet on a monthly basis (and ad hoc, as required) and comprise participants representing Member TSOs across Europe.

SCENARIOS

The Scenarios Working Group (SCN WG) is responsible for developing the supply and demand scenarios for ENTSOG deliverables based on analysis of current situation and potential future trends. SCN WG has been supported by the ENTSOG and ENTSO-E joint Scenario Building Working Group, gathering experts from both electricity and gas TSOs, and tasked with developing joint scenarios for the electricity and gas TYNDPs as the corner stone of their Interlinked Model between gas and electricity.

The SCN WG meets on a monthly basis (and ad hoc, as required) and comprise participants representing Member TSOs across Europe.

ACTIVITIES

INVESTMENT AND SCENARIOS

PUBLICATION OF TYNDP 2022

During the first quarter of 2023, ENTSOG finalised the TYNDP 2022 draft publication with the publication of TYNDP 2022 System Assessment and TYNDP 2022 Infrastructure reports, together with all TYNDP annexes. These complementary publications allowed ENTSOG to identify infrastructure gaps, namely the priority areas lacking market integration, security of supply, competition or sustainability. TYNDP 2022 also assess the contribution of hydrogen infrastructure, together with biomethane and natural gas infrastructure towards the fulfilment of EU climate and energy targets.

Following the Draft TYNDP publication in April 2023, and the subsequent public consultation, ENTSOG submitted the TYNDP 2022 to ACER. In October 2023, ENTSOG published the Final TYNDP 2022 publication which included a dedicated feedback section addressing the recommendations provided by ACER in its opinion, as well as the addressing the feedback received from the public consultation.

In addition, during first half of 2023, ENTSOG prepared the Project-specific cost-benefit analysis of PCI/PMI candidates. These assessments were published in a summarised form as project fiches that included a summary of project information, visualisation in form of a project map, summary of project benefits and was complemented by additional benefits identified by project promoters.

ENTSOG COST BENEFIT ANALYSIS METHODOLOGY UPDATE

As required by Article 11 of Regulation (EU) 2022/869 (revised TEN-E Regulation), ENTSOG worked on the preparation of the draft single-sector draft CBA Methodology for submission to EC, ACER and Member states. Following ACER opinion on ENTSOG Draft CBA Methodology, ENTSOG worked in the implementation of ACER's feedback and the preparation of its Final CBA Methodology for its submission to EC.

The methodology reflects specific provisions of the TEN-E Regulation and will be complemented by particular input data obligations for each TYNDP cycle.

PROJECT COLLECTION FOR TYNDP 2024

During Q2 and Q3 of 2023, ENTSOG prepared the data collection related processes, including the preparation and adaption of the Project Portal for TYNDP 2024 Project submission.

As part of such, ENTSOG prepared its TYNDP 2024 Draft Guidelines for Project inclusion (GPI) in September 2023. The document was later consulted by the EC and ACER, and followed a public consultation process. With consideration of the feedback received, ENTSOG prepared the TYNDP 2024 Final Guidelines for Project Inclusion (GPI) document. Following the feedback received by EC and ACER during the PCI/PMI process, ENTSOG updated project infrastructure subcategories defined in the Final GPI, allowing for further alignment with hydrogen subcategories defined in the revised TEN-E Regulation, as well as natural gas and other renewable gases subcategories. In addition, ENTSOG improved the technical and administrative criteria defined in its Final TYNDP 2024 GPI.

In addition, as part of the documentation to support TYNDP 2024 Project collection process, in November 2023, ENTSOG published the TYNDP 2024 Project Promoter Handbook, with the objective of facilitating the submission of projects by giving a step-by-step explanation of the project data portal and of the project collection.

ENTSOG opened TYNDP 2024 project data collection process (submission window) from 23 November 2023 until 22 December 2023, during this period ENTSOG actively supported project promoters providing guidance and clarifications on the project collection tool and process.

Following the subsequent phases of the TYNDP 2024 process (check and correction phases), the list of collected projects is expected to be published in the second quarter of 2024.

SEASONAL SUPPLY OUTLOOKS AND REVIEWS

The objective of the Supply Outlooks is to assess the flexibility offered by gas infrastructures for each of the oncoming Summer and Winter seasons, by considering the latest supply and demand trends, which are shown in the corresponding review reports.

In 2023, ENTSOG continued providing an additional support to the EC. The usual scope of the delivered Outlooks and Reviews was modified over the previous years with the intention to address beforehand how Europe could adapt in case of a full Russian gas supply disruption and how winter preparedness could be secured.

In the past, Summer Supply Outlook reports only focused on the ability of the gas infrastructure to allow market participants to reach high storage levels at the end of the summer gas season, based on the actual storage levels at the beginning of the injection time horizon. The analysis now includes the Winter Overview (where consecutive 6 months are also investigated) and is completed using sensitivities targeting different stock levels under different supply situations.

The Summer Supply Outlook 2023 report identified that, on 1 April 2023, the EU gas stock level was in the higher range of the past 5 years with 625 TWh due to the decrease in gas consumption due to a relatively mild winter 2022/23 weather, the high prices effect and the dedicated measures introduced by the Member States. In addition, the gas infrastructure, including projects commissioned last year, allows for efficient cooperation among the Member States. However, under specific circumstances, some possible supply limitations and bottlenecks were identified.

The Winter Supply Outlook reports explore the evolution of the underground storage inventories across the winter gas season while ensuring the supply-and-demand balance during specific high-demand situations. The robustness of the report is complemented by a sensitivity analysis on the different climatic profiles of the winter and additional summer overview where possibilities for the winter preparedness were investigated.

The results of the Winter Supply Outlook 2023 analysis show on 1 October 2023, the EU gas storage facilities reached 96 % on average which translates to 1,091 TWh (highest amount of gas stored within the last 5 years). The high storage filling level at the beginning of injection period, the decrease in gas consumption over the year and the dedicated measures introduced by the Member States together with the individual user's behaviour contributed to the record volume of gas in storage at the beginning of the winter period. In the case of the Reference Winter, the European gas network enables the demand to be met and still to keep more than the 30 % stock level target in all underground gas storage facilities by the end of the winter season. Under assumptions of demand and supply in the Reference Winter case, infrastructure enables 56 % of storage level on average in April 2024.

In the Winter Supply Outlook 2023/2024, ENTSOG has undertaken an EU assessment Union-wide simulation of gas supply and infrastructure disruption scenarios, including scenarios of a prolonged disruption of a single supply source, fulfilling the new obligation defined in the Article 7(1) of Regulation 2017/1936.

ENTSOG and ENTSO-E cooperated on their Winter Outlook reports, allowing the ENTSO-E Winter Outlook to reflect the ability of the power system to cope with gas security-of-supply situations that may affect gas-fired generation.

Seasonal reviews are an ENTSOG initiative based on the internal analysis of the supply-and- demand trends used to support the TYNDP and Supply Outlooks. ENTSOG publishes these analyses to share the results with stakeholders.

Additionally, ENTSOG produces a regular update of the Seasonal Supply Outlook Monitoring dashboard where the stakeholders can track the factual storages evolution in Europe in comparison to the seasonal outlooks results.

These reviews establish the basis to define the input data and methodology of subsequent reports. In addition to the focus on the supply-and-demand adequacy, the reviews go further by analysing the trend of the gas demand for power generation as well as of providing an insight on gas prices and traded quantities at the main European hubs.

SYSTEM CAPACITY MAP 2024

In 2023, the INV WG was involved in the work to merge the two former ENTSOG maps (Capacity Map and System Development Map) with the aim to have only one publication gathering the supply and demand trends together with most recent capacity data.

This new edition was finalised in December 2023 and published in January 2024. ENTSOG will publish the new System Capacity Map (in collaboration with GIE) on an annual basis.

The map still shows how the changes in the gas markets have affected the European gas system with many capacity changes and the addition of ad-hoc new projects in response to the energy crisis.

ENTSO-E/ENTSOG CONSISTENT AND INTERLINKED MODEL

To achieve EU targets in the most efficient way, it is essential to obtain a holistic overview of the energy system. The Interlinked Model is a key step in this regard, as it aims at ensuring that the interaction of gas and electricity sectors together is considered when assessing the value of infrastructure projects.

Based on the investigations carried out in the period of 2019–2020 and the recently adopted European regulations, ENTSO-E and ENTSOG have, in 2023, worked on the development of a consistent process for the inclusion of an *"infrastructure dual assessment"* in TYNDPs as well as the methodology for its application.

The aim of this exercise had already implemented the main identified improvements to TYNDP 2022, and further made these available for the Project of Common Interest selection process. This will be achieved without impacting the timeline of ongoing single-sector TYNDPs.

ENTSO-E/ENTSOG JOINT TYNDP SCENARIO REPORT

ENTSOG and ENTSO-E have joined their scenario building workstreams, building on their combined expertise and modelling capabilities as well as on the input received from industry stakeholders. This co-development approach results in a set of ambitious, technically robust and equally realistic scenarios. The joint scenarios outline the quantification of three markedly different storylines, and possible pathways towards a low-carbon energy system in line with EU targets.

Building on the positive stakeholder feedback received for TYNDP 2022, ENTSOG and ENTSO-E have further developed the scenario approach All three scenario represent full energy system approach. National Trends+ covers as "central scenario" the time horizon 2030 and 2040. From 2040 on (until 2050) two deviation scenarios, Distributed Energy and Global Ambition, were developed. National Trends+ is based on the National energy policies, in particular anticipating the draft NECPs to the extent possible which were due to be published end of June 2023. This enables National Trends+ to capture each Member State's strategy to comply with the EU 2030 climate targets. In addition, it will ensure an in-depth assessment of sectoral interlinkages, fuel switches and the monitoring of all GHG emissions in line with the 1.5 °C target of the Paris Agreement. Distributed Energy and Global Ambition reflect a storyline driven approach for the 2040 and 2050 time horizon.

The draft TYNDP 2024 scenario report is planned to be published in May 2024.

Find the complete report on our TYNDP-Scenarios-website:

2024.entsos-tyndp-scenarios.eu

SUPPORT TO REGIONAL GROUPS FOR 1ST PCI SELECTION PROCESS UNDER REVISED TEN-E

In 2023, ENTSOG actively engaged in the PCI Cooperation Platform activities and in providing its technical support to the Regional Groups, through its technical contribution to the activities of the Cooperation Platform. This Platform is composed of the Commission, ACER and the ENTSOs and aims at streamlining the work of Regional Groups.

ENTSOG has provided support to the first PCI selection process under the revised TEN-E Regulation by closely cooperating with the EC during the first half of 2023, and by ensuring the delivery of Project-specific cost-benefit analysis (PS-CBA) of PCI/PMI candidate projects to the EC and to project promoters.

In addition, project-specific cost-benefit analysis was complemented through the publication of project fiches in September 2023.

SUPPORT TO GAS COORDINATION GROUP AND EUROPEAN COMMISSION

The Gas Coordination Group (GCG) is a platform established by Regulation (EU) 944/2010, introducing measures of safeguarding the security of gas supply.

The role of the GCG is to exchange information and best practices, and to facilitate security of supply standards and to support supply-and-demand balance, especially in case of critical situations. Members include the EC, representatives of EU Member States, ENTSOG, and other international organisations, as well as industry.

In 2023, ENTSOG worked on the assessment of the short and midterm impact to the gas market and transmission operations triggered by the invasion of Ukraine by Russia. ENTSOG presented results of its assessment, highlighting the rationale and assumptions, input data, simulation results and also the potential impact of numerous combinations of events on the results. ENTSOG delivered all ad hoc analyses for the EC and GCG, providing tools helpful to determine measures such as demand reduction, storage targets, and storage trajectories, amongst other.

Picture courtesy of Plinacro

Picture courtesy of Enagás

5

MARKET NETWORK CODES & GUIDELINES AND MARKET ASSESSMENT

Work in 2023 was undertaken to envision which practical and innovative actions by TSOs could support the achievement of EU goals on climate neutrality and energy transition, competitiveness, security of supply and sustainability to assess their potential impact on the functioning of the internal gas market.

The Market Team is responsible for providing expertise on the development and monitoring of the market-related Network Codes that enable the functioning of the internal European gas market. The Market Area also liaises with the Energy Community, providing support in their Network Code development and implementation activities.

In addition to work on the Network Codes, the Market Area is responsible for the jointly managed ACER and ENTSOG Functionality Process, which addresses not only potential adjustments to the implementation of Network Codes, but also to include possible issues which might require future Network Code adaptations.

WORK STRUCTURE

The work within the Market Area is organised within MAR WG and four Kernel Groups dedicated to specific topics.

Figure 9: Kernel Groups and associated with Market area

The MAR WG meets monthly (and ad-hoc, as required) and comprises participants representing Member TSOs across Europe.

MAR WG is responsible for ENTSOG's activities related to balancing, capacity and tariffs. This includes all topics related to the CAM NC (including the CMP Guidelines), BAL NC and TAR NC, as well as any further regulation possibly upcoming in relation to these areas.

The work within the MAR WG is managed via their corresponding KGs, with more specialised tasks. The activities of BAL, CAP and TAR KGs are coordinated through the MAR WG.

One of the subgroups of the MAR WG is the GO Kernel Group, which deals with Guarantees of Origin. ENTSOG also co-chairs, alongside GIE, the *"GO Prime Movers"* Group, coordinating actions on this topic alongside industry stakeholders.

The work areas addressed in the network codes and guidelines Kernel Groups are as follows:

CAPACITY

The Capacity KG (CAP KG) is responsible for ENTSOG's activities related to the allocation of existing and incremental capacity, with a focus on the implementation, application and functioning of the Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems (CAM NC – REG (EU) No 2017/459) and rules on congestion management established through the Commission Decision of 24 August 2012 on amending Annex I to Regulation (EC) No 715/2009 (CMP GLs). The CAP KG has also been responsible for ENTSOG's activities related to implementation and operational issues raised on the Functionality Platform that are connected to CAM NC or CMP GLs.

Furthermore, the CAP KG is responsible for the monitoring of CAM NC and the CMP GLs and developing monitoring reports on the implementation and effect of the CAM NC and CMP GLs. The CAP KG also analyses and provides feedback to ACER's monitoring reports on the same topics, where necessary.

Where requested, the CAP KG provides appropriate input to the update of Common Network Operation Tools (CNOT) – comprising Business Requirements Specifications (BRS) for the CAM NC and the CMP GLs document and Message Implementation Guideline (MIG).

BALANCING

The Balancing KG (BAL KG) is responsible for ENTSOG's tasks related to balancing activities in transmission systems, with a focus on the implementation, application and functioning of the Network Code on Gas Balancing of Transmission Networks (BAL NC – REG (EU) No 312/2014). The BAL KG is responsible for providing expert knowledge and guidance to ENTSOG members and external parties on balancing-related topics. One key activity, among others, is developing the report on the implementation and the effect monitoring of BAL NC.

Where requested, the BAL KG also provides appropriate input to the update of Common Network Operation Tools (CNOT) and contributes to the development of issues solution related to BAL in the Functionality Process.

TARIFFS

The Tariff KG (TAR KG) is responsible for providing expertise, monitoring, and development of the Network Code on Harmonised Transmission Tariff Structures for Gas (TAR NC – REG (EU) No 2017/460).

One key activity of the TAR KG is developing the report on the implementation and the effect monitoring of TAR NC – looking at the implementation status and progress of the TAR NC and its effects.

Overall, the TAR KG is active to inform and support proposals of the MAR WG on TSO tariffs and revenues, especially in the context of asset repurposing for the transition to hydrogen. As such, it keeps a close monitoring of developments on tariffs in Member States and of stakeholders' proposals on asset repurposing and revenue regulations.

ACTIVITIES

In 2023, the MAR WG alongside other ENTSOG WG's, contributed in the development of policy options to enable the uptake of renewable and decarbonised gas in the European market.

The ENTSOG MAR team and ENTSOG Members were involved as experts for the online course *"EU Gas Network Codes"* organised by both ENTSOG and the Florence School of Regulation on Market Codes: Capacity, Balancing and Tariffs NCs.

CAPACITY KERNEL GROUP

CAPACITY ALLOCATION MECHANISMS

In 2023, ENTSOG published the annual auction calendar for the gas year 2024/2025, the CMP Guidelines Implementation and Effect Monitoring Report 2023 and the CAM NC Implementation and Effect Monitoring Report 2023.

ENTSOG also continued the monitoring of the 2021–2023 incremental capacity process, publishing the Third Incremental Capacity Process Report 2021–2023.

The CAP KG also prepared the workshop on maximisation and efficient use of capacity.

The CAP KG also started work on the CAM NC amendment process as ACER published a survey asking for input on potential changes to the CAM NC. The process will continue in 2024.

BALANCING KERNEL GROUP

In 2023, the BAL KG continued supporting ENTSOG members with the implementation of the BAL NC.

Based on ENTSOG's obligation set out in Article 8 (8) of the Regulation (EC) No 715/2009, to monitor the implementation and effects of the network codes and guidelines, at the end of 2023 the BAL KG started the data collection (which also supports the update of ACER's gas balancing dashboard due to be published in 2024) to produce the next edition of the Implementation and Effect Monitoring Report.

TARIFF KERNEL GROUP

In 2023, the TAR KG continued supporting ENTSOG members with the implementation of the TAR NC.

Based on ENTSOG's obligation set out in Article 8 (8) of the Regulation (EC) No 715/2009 to monitor the implementation and effects of the network codes and guidelines, the TAR KG started work on the questionnaire that forms the basis for the Implementation and Effect Monitoring Report. To continuously improve the report, the TAR team and KG discussed the 2024 edition of the TAR NC Implementation and Effect Monitoring report – the Market Area was also in touch with ACER on the preparatory works on the report.

JOINT NETWORK CODE FUNCTIONALITY PROCESS

The established Joint Functionality Process, co-managed by ENTSOG and ACER and supported by the EC, is aimed at reaching commonly recommended solution(s) on implementation and operational issues within the existing Network Codes and Guidelines. It provides stakeholders a possibility to raise and discuss issues as well as an opportunity to be involved in developing solutions, which aim at commonly recommended non-binding guidance.

The Gas Network Codes Functionality Platform[1] enables stakeholders to raise implementation and operation issues via the web interface and gives an overview of all reported issues and their status. Since its introduction in 2016, the perceived limited scope – only Network Code implementation, functional or operational issues could have been raised on the platform – was outlined as a potential barrier to submission of Network Code related issues. Therefore, in the summer of 2017, in conjunction with ACER, the scope of the Functionality Process was broadened to allow any issue related to the Network Codes to be included. In addition, the number of potential Network Codes and Guidelines was also expanded to include the Transparency Guidelines and the TAR NC. In July 2018, the first issue solution was published on the Functionality Platform, related to Ex-post interruptible capacity discounts. Solutions for two issues on the Functionality platform were proposed in 2023. The table below provides an outline of the latter.

Issue poster	Description	Status
EFET	Greater flexibility to book firm capacity at IPs	Solution proposed
MVM CEEnergy Ltd	Modification of the ascending-clock auction algorithm	Solution proposed

Table 6: Status of issues discussed, solved or posted on FUNC platform during 2023

MARKET ASSESSMENT

In 2023, the Market Area continued to evaluate relevant policy and legislative initiatives in the EU gas sector and examined practical and innovative TSO actions which could facilitate the energy transition whilst maintaining security of supply and promoting competition.

MAR WG provided updates to the ENTSOG Liaison Group, worked with INT WG, Legal Advisory Group and other relevant groups, and liaised with the Gas and Hydrogen Package (GHP) TF.

1 https://www.gasncfunc.eu/gas-func/


Picture courtesy of Gas Connect Austria

MARKET NETWORK CODES **IMPLEMENTATION** AND EFFECT MONITORING

ENTSOG is required to publish monitoring reports on implementation as well as on effects of the CAM NC, TAR NC, BAL NC and CMP GLs. The monitoring requirements differ for the different Network Codes for the frequency of the reports' publications.

In the first half of 2024, the Implementation and Effect Monitoring Reports for the Tariff Network Code and the Balancing Network Code will be published.

For a general overview of these reports and their main findings, please find the following Executive Summaries below.

TAR NC IMPLEMENTATION AND EFFECT MONITORING 2024 REPORT

The monitoring report 2024 provides an overview of the implementation status of the Tariff Network Code (TAR NC) by European Transmission System Operators (TSOs). The report also analyses the TAR NC's effect on the European gas market, **as of 1 October 2023** and changes in application of the TAR NC in comparison to previous editions of the report.

The TAR NC facilitates efficient trade and competition and lays out methodologies to transparently and cost-reflectively calculate tariffs, to avoid cross-subsidies between network users and to provide incentives for investment.

Apart from the **regulatory dimension**, the report can also be potentially looked at in the **context of current developments**. Since the previous edition of this report in 2022[1], which was focusing on data until 2021, the **EU gas market experienced significant changes**.

Among key events, there were the post-COVID-19 economic recovery and the EU gas crisis in 2021–22[2]: new gas storage targets, a sharp rise in LNG supplies compensating for a drop in Russian pipeline flows and the sabotage of the Nord Stream pipelines and reorganisation of gas flows with the ensuing congestion premia at some IPs. Some indicators in the report may allow to register the potential impact of these events on TSOs.

Concerning the structure of the report, it consists of **two parts**: **Implementation monitoring ("IM")** and **Effect monitoring ("EM")**. The information presented in this report was collected from the participating European TSOs via questionnaires by ENTSOG. In total ENTSOG received 42 questionnaire responses; 48 TSOs took part in reviewing this report. Non-participation in responding to ENTSOG's questionnaire can be explained by derogations and exemptions from the TAR NC.

1 The previous edition of the report is available here on the ENTSOG website.

2 Month-ahead and day-ahead prices reached more than 300 EUR/MWh in August 2022 at the Dutch TTF hub. For more information see this Council page or this review from the Oxford Institute for Energy Studies for example.

TAR NC – IMPLEMENTATION MONITORING (IM)

With the various editions of this report, **we can see the progress of implementing the TAR NC** by the European TSOs over the years. Looking at the data of this edition, we can register the **very high compliance level of the European TSOs** to the provisions of the network code and a **further closing of minor application gaps** compared to the previous report.

In a very minor number of specific cases of derogating from TAR NC rules, National Regulatory Authorities (NRAs) have provided justifications. Overall, we can see that TSOs have adapted the TAR NC rules with high compliance in a process lasting several years.

TAR NC Implementation Monitoring: Trends, highlights and changes

By analysing the responses to our IM questionnaire, we can conclude from the 42 answers we received that as of 1 October 2023, **all 42 European TSOs applied the "new Reference Price Methodology (RPM)"**, i.e., based on rules in line with the TAR NC. One TSO from Bulgaria currently applies the rules in an implementation effort, however, while the formal decision of the NRA is still outstanding.

Looking at the progress, in the 2020 report a significant share of EU TSOs was still using the "prevailing" RPM due to ongoing tariff periods which differ in the Member States. In the 2022 report, two TSOs still used the prevailing rules because of their ongoing tariff period. In our 2024 report we see all TSOs applying the new Reference Price Methodology. This evolution **shows the strong progress of TAR NC implementation** that has happened **over the past years.**

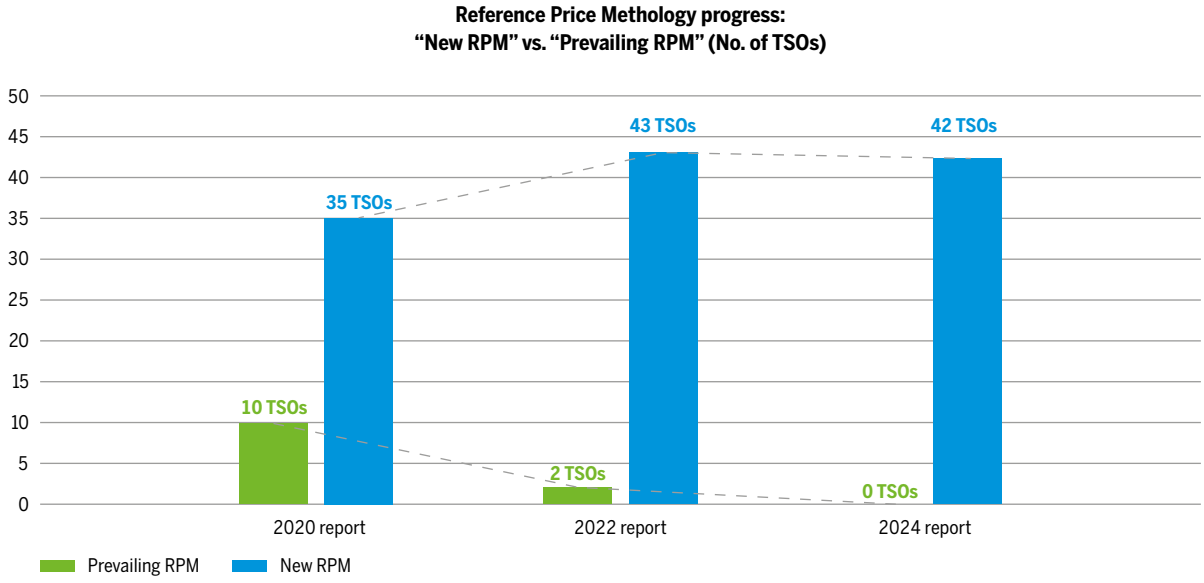

Figure 10: Reference Price Methology progress: "New RPM" vs. "Prevailing RPM" (No. of TSOs)

Progress of application of new RPM[1]

Concerning **adjustments to the application of the RPM**, **rescaling is the most widespread tool** used by TSOs, with equalisation on second place, followed by the benchmarking adjustment. This order of application is in line with the findings of last report.

One interesting point where we can notice changes is the area of **discounts** for capacity-based tariffs for entry and exit to **storage facilities** and entries from **LNG facilities**.

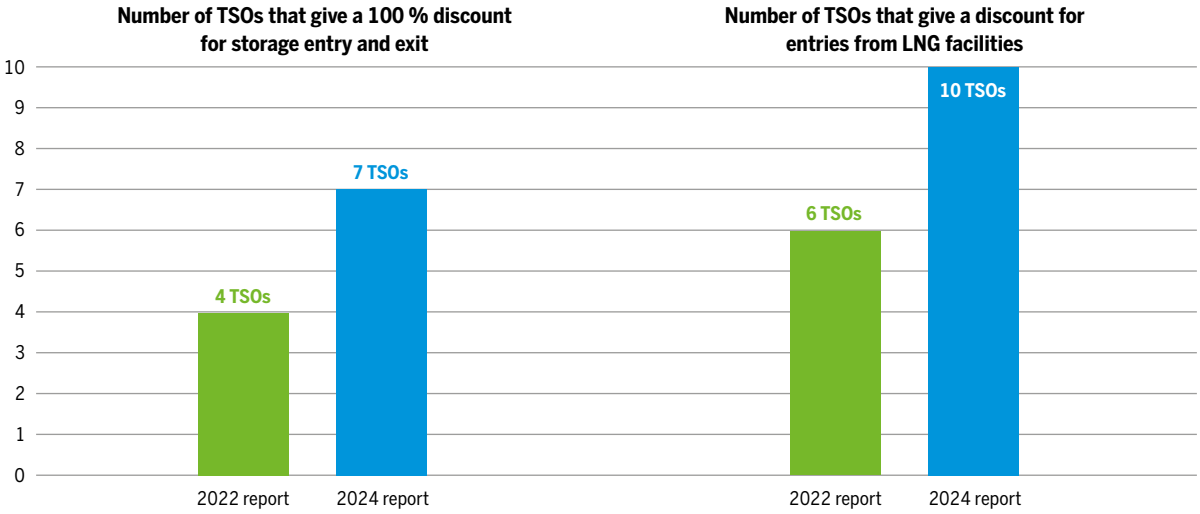

Figure 11 and 12: Number of TSOs that give a 100 % discount for storage entry and exit and number of TSOs that give a discount for entries from LNG facilities

Storage discounts	LNG discounts
We see **a rise in the number of TSOs giving a 100 % discount (rising from four TSOs in the last report to seven TSOs in this report)**. The majority of discounts given is in the 75 %–99 % range – clearly above the mandatory 50 % which are asked in TAR NC.	For the TSOs connected to LNG facilities, 60 % give a discount. Here we can also notice a **significant rise in TSOs applying this voluntary discount** – increasing from six TSOs in the 2022 report to ten TSOs in 2024.

Table 7: Storage and LNG discounts

Looking at **reserve prices** we can monitor the following changes. Concerning **re-adjustments in the middle of a tariff period**, we see the effects of ongoing market mergers and of the energy crisis in 2022. The **number of re-adjustments of tariffs has minimally risen** in comparison to the 2022 report from 18 to 19 cases. The number of cases in the 2024 report consists mostly of the **market merger** in Germany and **tariff adjustments due the impact of the energy crisis** after the Russian invasion of the Ukraine and changes in gas flows in Europe.

On the topic of **interruptible discounts,** the number of TSOs applying the **ex-ante interruptible discount has risen** and the number of TSOs using the **ex-post discount has decreased** in comparison to the last report.

In the area of **reconciliation of revenues** and looking at regimes, **non-price cap regime is the overwhelmingly used model**. More than 90 % of European TSOs who answered operate partly or fully under a non-price cap regime – TSO models stayed very similar to the results of the 2022 report. Concerning the length of the revenue reconciliation, the **majority of TSOs reconcile revenue over a period of one to three years**. In comparison to the findings of the 2022 report, the **number of TSOs utilising a one-year reconciliation period has dropped** significantly – from 15 TSOs to 8 TSOs in the current report.

When monitoring pricing of bundled capacity and capacity at VIPs, **VIP tariffs are defined by a majority** of TSOs **using the reference price of the VIP itself** – we see a rise in TSOs using this approach in this report. Over the years we can register a switch from weighted average tariff of IPs for VIPs to tariffs directly derived for the VIP through the RPM.

1 Please note that the number of TSOs who answered the questionnaire and participated changed throughout the years. Between 2022 and 2024, for example, the Brexit came into force, removing the UK TSOs from the report, plus a TSO ceasing operations.

The TAR NC introduced the level of "broad scope" – rules to be applied to all points – and "limited scope" – to be applied to IPs. For third-country points, a majority of TSOs apply limited scope rules – we notice a **significant increase of TSOs applying limited scope to third-country points** in comparison to the last report.

As the implementation level of the TAR NC was already highly progressed in the last report, many factors are generally comparable to the last report. However, as the TAR NC provides different options in certain areas, we can still register changes and trends from one IM report to the next as outlined above.

TAR NC – Effect monitoring

The EM part of this report analyses the effect of the TAR NC on the European gas market, taking account of the different application dates of the TAR NC. The effect of the TAR NC across the market has been studied by means of five indicators (the same indicators were used in the previous edition of the report, with at times limited changes, though):

- **TAR.1** "ratio of under-/over-recoveries to allowed/target revenues"
- **TAR.2** "changes in capacity-based tariffs"
- **TAR.3** "seasonal factors for IPs"
- **TAR.4** "publication of information in English"
- **TAR.5** "multipliers for products with quarterly, monthly, daily and within-day durations."

TAR NC Effect monitoring: Trends, highlights and changes

In the time span of 2013–2022, the average European TSO had an **under-/over-recovery evolving in a range from –2.6 % to +6.8 % compared to its allowed/target revenue**, although some TSOs have annual under-/over-recoveries significantly higher or lower than these values.

The first notable EM fact in 2021 and 2022 is the **growing heterogeneity of TSO imbalances in comparison to previous years, as shown by indicator TAR.1**.

While the average TSO typically continues to recover almost exactly its regulated revenue, in 2021 and 2022 **the minority of TSOs with significant under-recoveries or over-recoveries1 has steadily increased** – from no more than three TSOs in a given year until 2019, to five TSOs in 2020, seven in 2021 and ten TSOs in 2022.

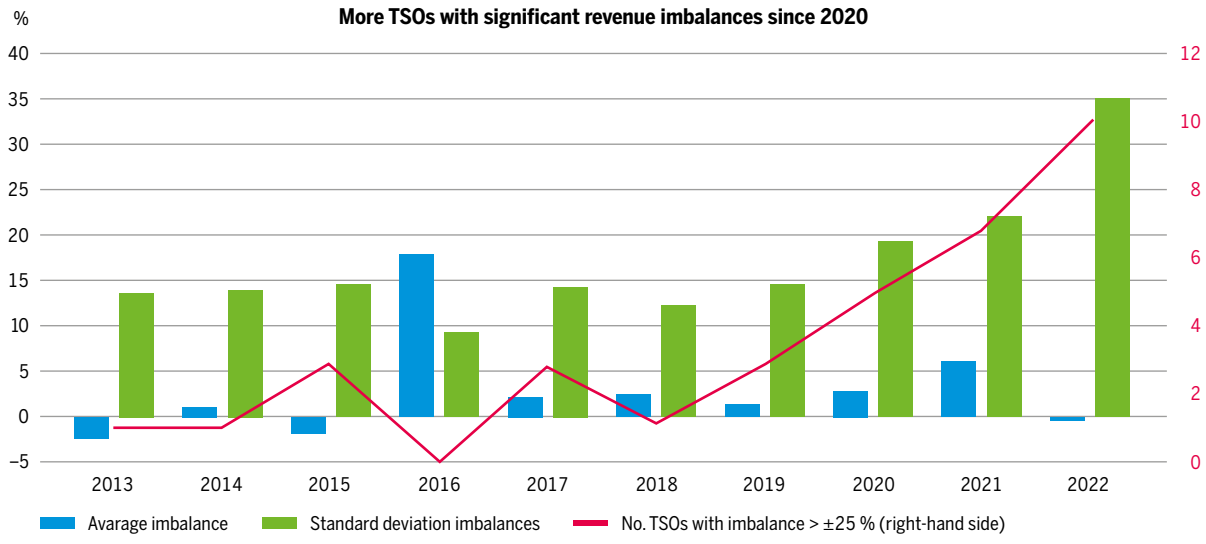

Figure 13: More TSOs with significant revenue imbalances since 2020

1 Significant under- or over-recovery is defined here as ± 25 % compared to the regulated revenue.

Changing patterns on EU gas TSO revenue recovery since 2020

Based on TSOs' feedback, it seems that **high over-recoveries** for some TSOs may be caused by increased LNG entries, congestion revenues at IPs in connection with changing flow patterns in Europe to supply alternatives to Russian pipeline gas, and the economic upturn after COVID-19. National reasons are clearly also explanations in several cases.

High under-recoveries for a few other TSOs may be explained by reduced bookings and flows after the drop in Russian supplies. Here as well, national factors contributed to evolutions.

The EU gas **TSOs are therefore affected differently** in terms of revenue recovery, with a small but growing number of TSOs with deviations from their regulated revenue in recent years.

A major point to highlight is that TSOs are not structurally earning more or less than their regulated revenue since there is typically a reconciliation in the next few years.

The second important change in this EM report in 2024 is the **unprecedented discrepancy between TSO tariff evolutions and inflation levels, as shown by indicator TAR.2**, while inflation and TSO tariff changes were rather close until 2020.

While **EU inflation reached 2.9 % in 2021 and 9.2 % in 2022** according to Eurostat, **TSO tariffs just increased by 0.7 % and 0.8 % in the same time span**. The median TSO registered 0.0 % and 0.3 % increases in 2021 and 2022.

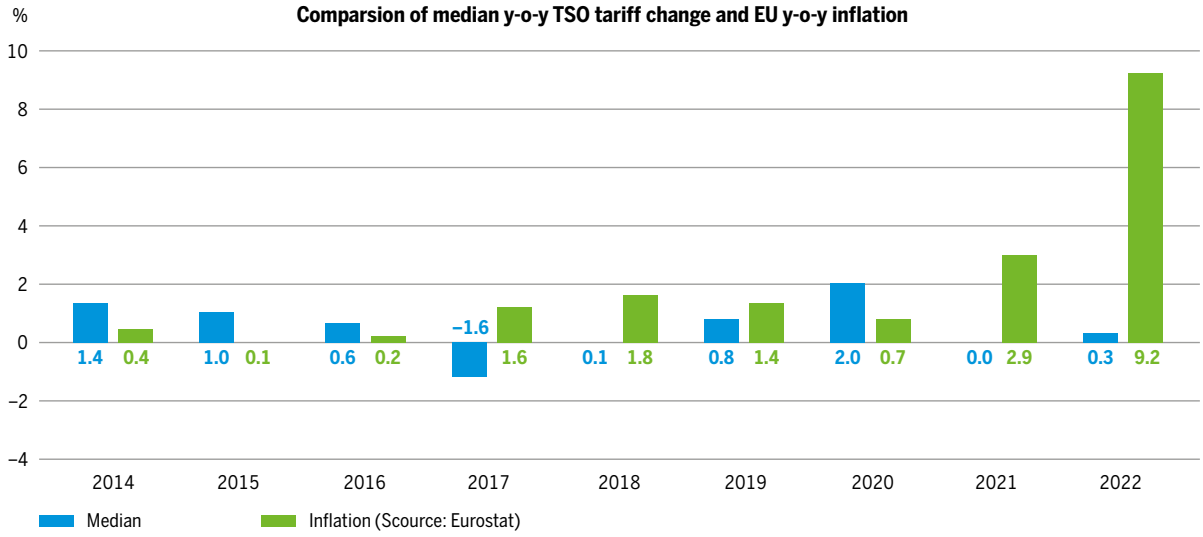

Figure 14: Comparsion of median y-o-y TSO tariff change and EU y-o-y inflation

Median TSO tariffs significantly fell behind inflation since 2021

The **high inflation in Europe** caused by the combination of the post-COVID-19 economic recovery and the supply shock from reduced Russian pipeline flows was not yet incorporated in tariffs for many TSOs in 2021 and 2022. Nevertheless, in a few countries, tariff moderation in 2022 is possibly a result of over-recoveries in relation to increased LNG entries and IP congestion premia.

Concerning other EM areas of interest, **seasonal factors are used by only nine TSOs** and follow rules from the TAR NC. No major evolution is notable compared to the 2022 edition of this report.

Regarding **publication of tariff information in English**, when it was TSOs' responsibility to publish such information, **TSOs indicated it is now published in English in all cases**. Transparency on tariffs has therefore reached peak application compared to 2022.

In terms of multipliers, all TSOs are compliant with the ranges of multipliers defined in the TAR NC, except one TSO regarding within-day multipliers, for which the TAR NC only gives a default value that may be derogated from. Compared to the 2022 edition of the report, all TSOs have now shifted to a tariff period different from the one at the entry into force of the TAR NC.

As a closing comment, we believe **this Monitoring report has gained new value since the last edition in 2022.** The EM indicators possibly show some of the impact of the recent macroeconomic shocks in Europe. It will be important for TSOs to understand if the change in patterns in 2021–22 was just an exception or the start of a new trend.

BAL NC IMPLEMENTATION AND EFFECT MONITORING 2024 REPORT

In October 2023, ENTSOG launched the implementation monitoring data collection and started drafting the sixth BAL NC Implementation Monitoring report, with publication in Q2 2024.

The report reflects the status of the BAL NC implementation on 1 October 2023 and covers the most recent updates implemented during Gas Years 2021/22 and 2022/23. The report evaluates the BAL NC implementation status in 26 balancing zones in 25 countries[1] (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GR, HU, HR, IE, IT, LT, LU[2], LV, NL, PL, PT, RO, SE, SI and SK). Cyprus does not have TSOs, therefore it was not contacted to take part in this monitoring report. Malta continues to hold a derogation according to Article 49(6) of the Gas Directive[3] and the future network of the prospective TSO Interconnect Malta is not yet commissioned. It is therefore not included in this report.

BAL NC IMPLEMENTATION MONITORING

The Implementation Monitoring Report shows that again progress has been made towards the full implementation of BAL NC provisions in comparison to the previous monitoring report.

Compared to the previous report, Greece has ended the use of **interim measures**, reducing the number of countries where interim measures are still in force to two, namely Ireland and Slovakia. The reason indicated to still have interim measures in place is because of the absence of sufficient liquidity of the short-term wholesale gas market. In Ireland existing tolerances are needed to support the development of renewable gas injection.

The interim measures are intended to be lifted once functioning Trading Platforms are established and/or market liquidity is developed.

New **balancing zone mergers** have been accomplished as from 1 October 2021 in Bulgaria and Germany.

From 1 October 2021, the merger of the National and Transit balancing zones came into force in Bulgaria, as did the merger of the gas market hubs Gaspool and NetConnect Germany into the joint market area Trading Hub Europe (THE) in Germany.

By 1 October 2023, **trading platforms** have been established in almost all balancing zones, except for Slovakia where a **balancing platform** is in place. In Greece a trading platform was established in March 2022. **Balancing services** are still procured in six countries (Germany, Finland, Greece, Latvia, Poland (in the H-gas balancing zone) and Slovenia) when Short Term Standardised Products (STSPs) are not providing the necessary response to keep the transmission network within its operational limits, in absence of a liquid trading platform or to respond to specific system needs.

Daily imbalance charges have been implemented by TSOs in all countries except for Slovakia, where interim imbalance charges apply.

Within day obligations (WDOs) are in place in Austria, Belgium (in both BeLux-H and BeLux-L balancing zones), Denmark, Germany, Hungary and the Netherlands.

In all countries **neutrality provisions** have been implemented as per BAL NC. TSOs from five countries (France, Italy, Poland, Romania and Spain) have reported that cases of default payment by network users occurred during the reporting period. In all cases, the credit risk measures implemented have been activated as intended.

At 1 October 2023, all countries had implemented the **information provisions** of BAL NC, with the exception of Greece, where implementation of non-daily metered information provision is still ongoing.

Compared to the previous Implementation Monitoring report, apart from Czechia, France, Netherlands and Portugal, Hungary now also offers a **linepack flexibility service** (LFS).

Further changes in the national balancing rules have been reported as under implementation in four countries (Finland, Greece, the Netherlands and Slovakia).

1 The term "country" refers to member countries of the EU. As of this report, UK TSOs have been excluded from the monitoring activities due to Brexit.

2 The data for Luxembourg are part of the questionnaire submitted by the Belgian TSO (Fluxys) as Belgium and Luxembourg have the same balancing regime and together form one balancing zone.

3 Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.

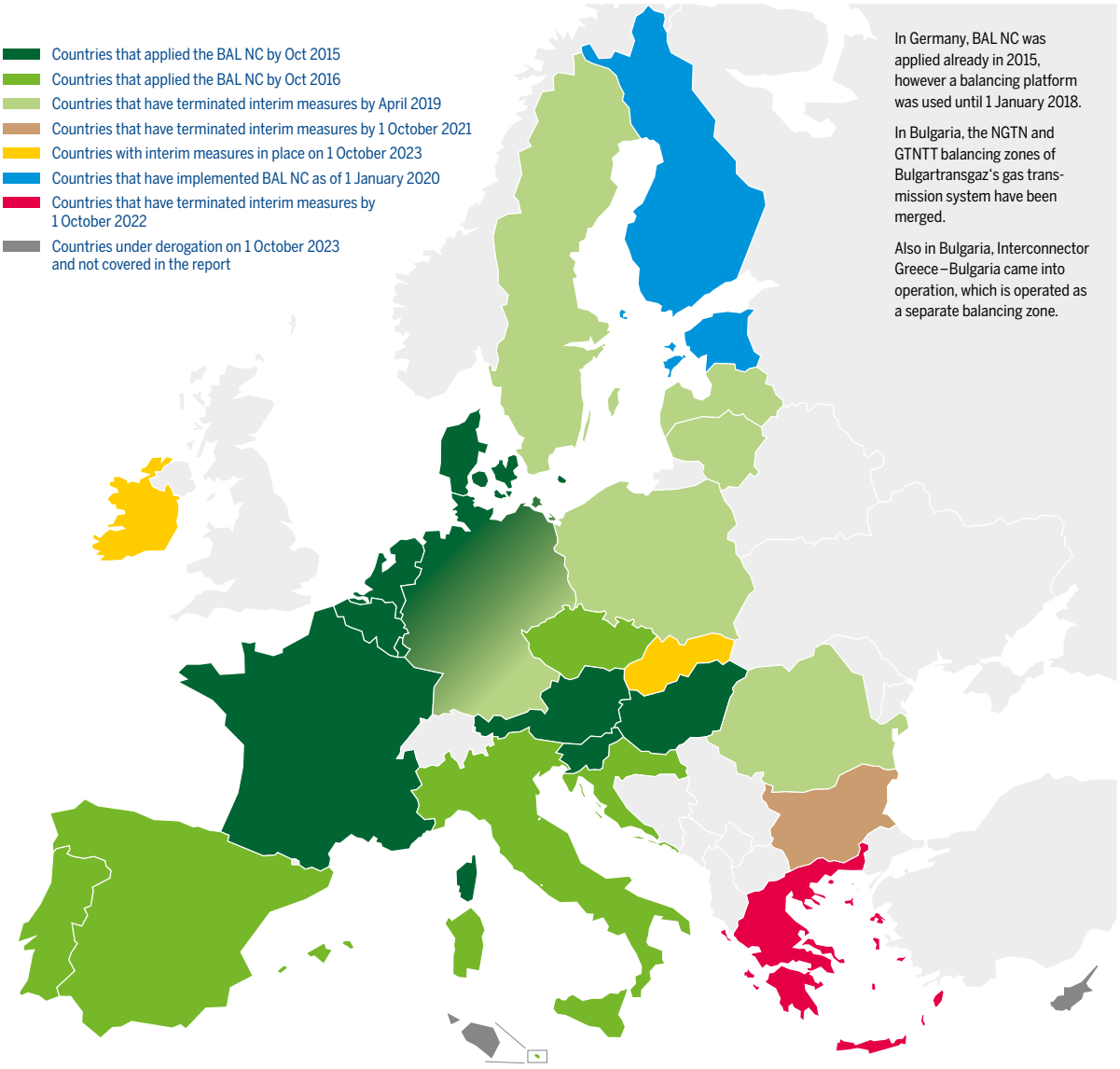

Figure 15: Implementation status of the BAL NC in EU Member States as of 1 October 2023

In conclusion, the BAL NC Implementation Monitoring Report shows again a more advanced stage of implementation of harmonised balancing rules among EU balancing zones. However, further improvement is still needed to overcome the market illiquidity in certain gas hubs and to remove the interim measures in place.

Moreover, it is expected that further assessment of the existing balancing rules will be needed in order to enable market integration of low carbon and renewable gases.

BAL NC EFFECT MONITORING

The Effect Monitoring Report focusses on the effects of the BAL NC on EU balancing zones at the end of GY 2022/23 (until the reference date of 1 October 2023).

The data collected by means of a questionnaire have been analysed using five indicators to assess the effects of the BAL NC implementation across EU balancing zones:

- **Indicator BAL.1**: TSO balancing via Short Term Standardised Products (STSPs) vs. total TSO balancing actions
- **Indicator BAL.2.1**: TSO balancing volume as % of Market Volume[1]
- **Indicator BAL.2.2**: TSO balancing volume as % of Domestic Volume
- **Indicator BAL.32**: Net NUs imbalances as % of Market Volume[3]
- **Indicator BAL.44**: Average network users' cost of being balanced by the TSO

Results of the effect monitoring indicators

Indicator BAL.1 aims at assessing the extent to which TSO balancing actions are undertaken following the "merit order" (Art. 9 of BAL NC) and **the progressive use of short-term standardised products over other balancing tools.**

Based on the results of indicator BAL.1, in GY 2022/23 it is observed that during the past gas year most TSOs relied on Title products when undertaking balancing actions in their respective balancing zones, and an increased use of STSPs as tool for TSOs to undertake balancing actions, and a progressive reduction of balancing services to only 0.21 % in GY 2022/23.

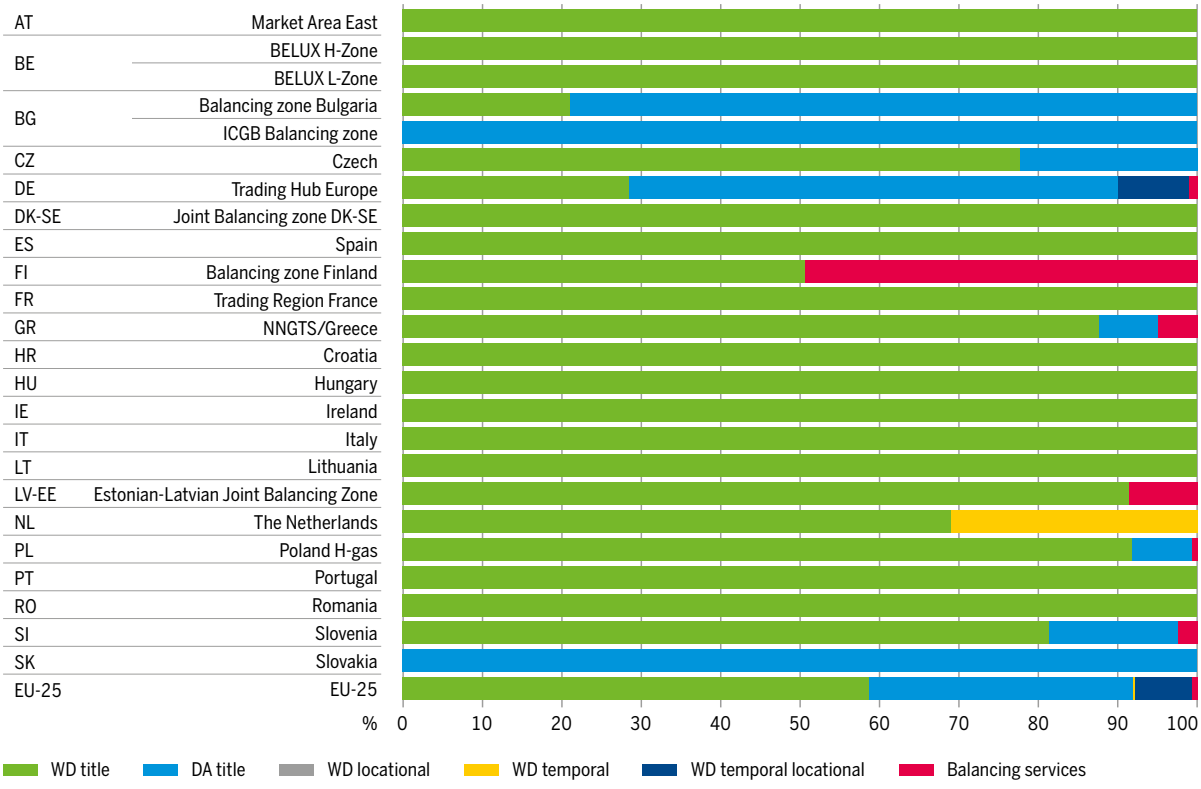

Figure 16: Indicator BAL.1 (%) for GY 2022/23

1 Market volume means Gas volume subject to balancing

2 Named as Indicator BAL 4 in monitoring reports 2019 and earlier

3 Market volume means Gas volume subject to balancing

4 Named as Indicator BAL 5 in monitoring report 2019 and earlier

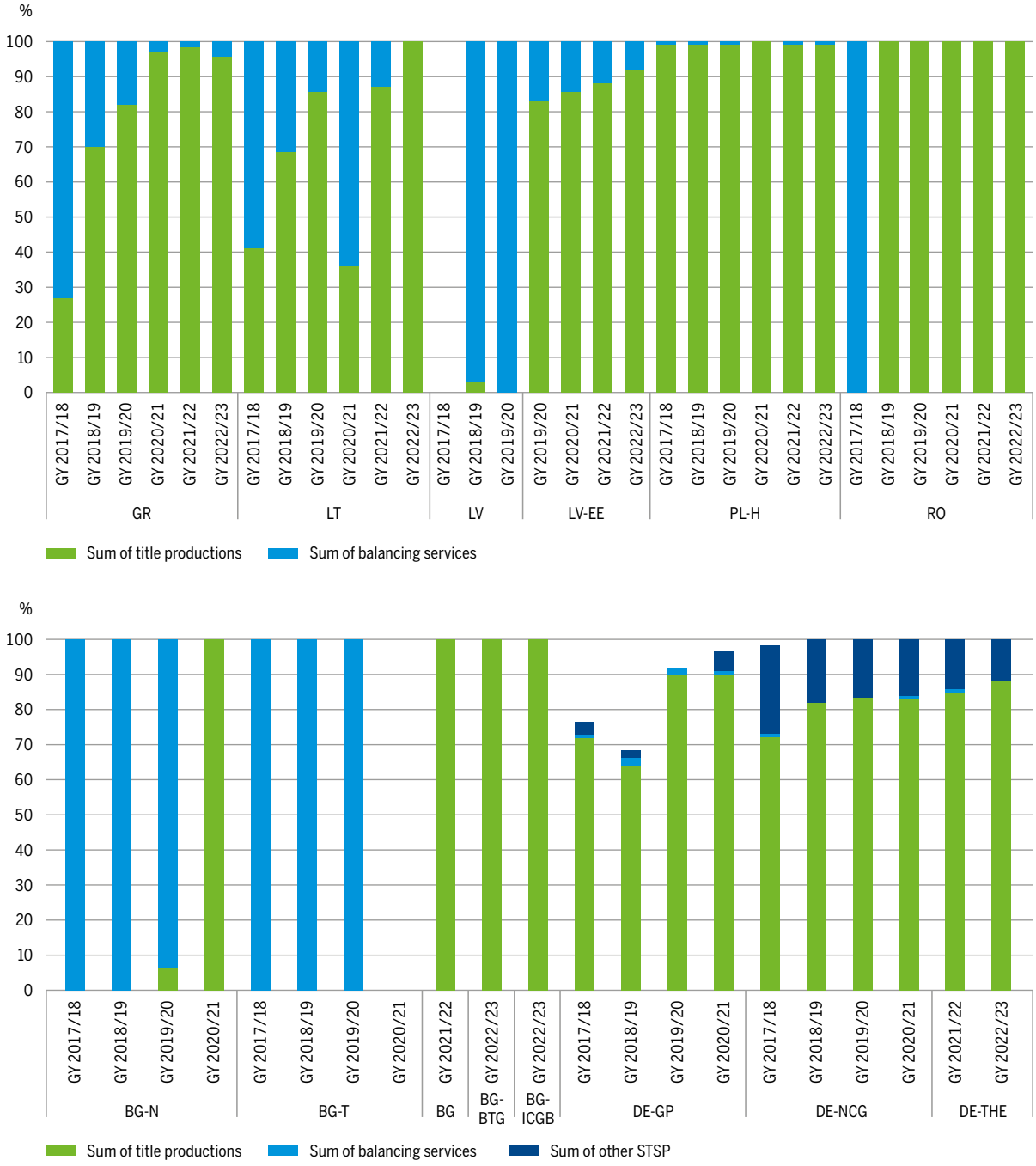

Figure 17: Countries that terminated the use of interim measures before 1 October 2023

Establishing a residual balancing role for the TSO while leaving the primary balancing responsibility to the network users is one of the key principles of the BAL NC. Therefore, **indicator BAL.2.1 assesses how much gas is traded by the TSO for balancing purposes compared to the Market volume**. The Market volume considers the quantity allocated at all entry points into a balancing zone which are subject to balancing (e.g., virtual IPs, LNG, production and storages) but excluding VTP trades.

In order to better compare the balancing zones by removing the effect of the cross-border flows and exits towards storage facilities, the **indicator BAL.2.2 is calculated by replacing the total entry volume with the domestic end-users consumption volume**. The domestic consumption considers the quantity of gas allocated at all exit points to final customers connected at the transmission network and exits towards DSO networks/city gate, therefore it excludes exits to storage and cross-border exits. The domestic volume is considered representative of the actual demand for end-users trading gas within each balancing zone, therefore it is deemed to give a more precise assessment of the more or less marginal role of the TSOs undertaking balancing actions within its respective balancing zone.

Indicator BAL.2.1 shows that the level of TSO/MAM's balancing action volume remains below 1 % for most balancing zones, signalling that the percentage of TSOs/MAM's balancing action is overall relatively small compared to the total gas volume entering each balancing zone.

In some balancing zones cross-border flows have an impact on the overall gas quantities entering the market, which is more evident when comparing the TSO/MAM balancing action volume with the domestic end-user's consumption (BAL.2.2). In most balancing zones the value of this indicator remains below 2.5 %

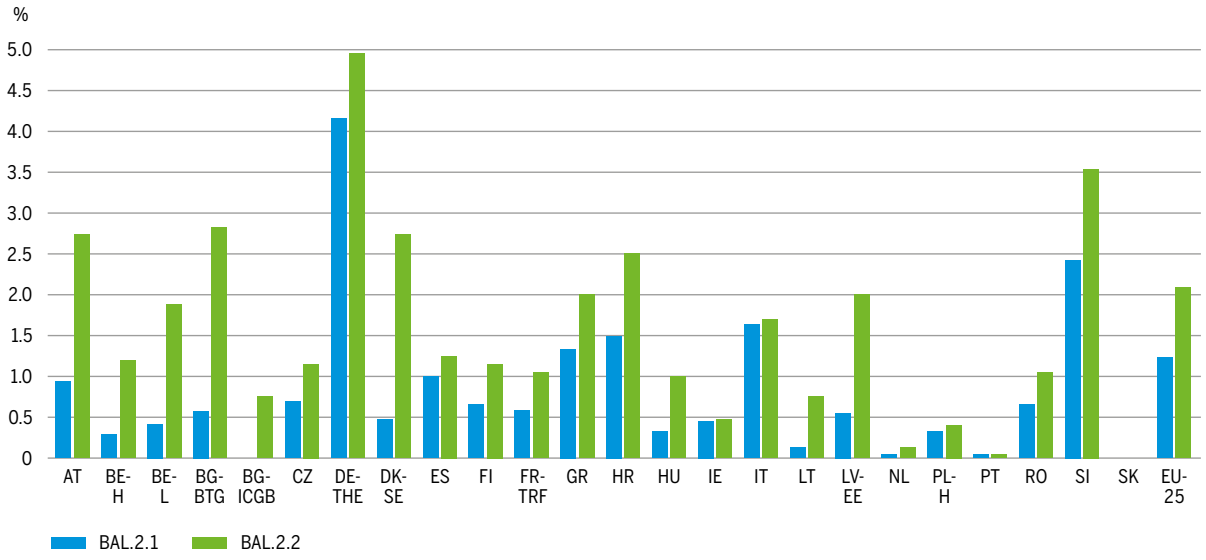

Figure 18: Indicator BAL.2.1 versus BAL.2.2 for GY 2022/23

The **indicator BAL.3 assesses whether on average during the year network users contribute sufficiently to keeping the system in balance**. This is done by calculating the sum of the weighted average daily net imbalance volume over the yearly market volume (as defined in indicator BAL.2.1). In the cases when tolerances and LFS are applied, the net network users' imbalances also consider the tolerated imbalance volume and the imbalances covered by the LFS (both Short and Long).

Assessing the level of network users' imbalances, indicator BAL.3 shows less favourable values compared to the previous report. In most markets distortions due to the invasion in Ukraine seem to have it made harder for network users to balance their portfolios themselves especially in GY 2021/22 where higher imbalance volumes met lower market volumes which compounded the negative impact on indicator BAL.3. However, in most balancing zones, the residual imbalance level still was equal or less than 2 % of the total market volume.

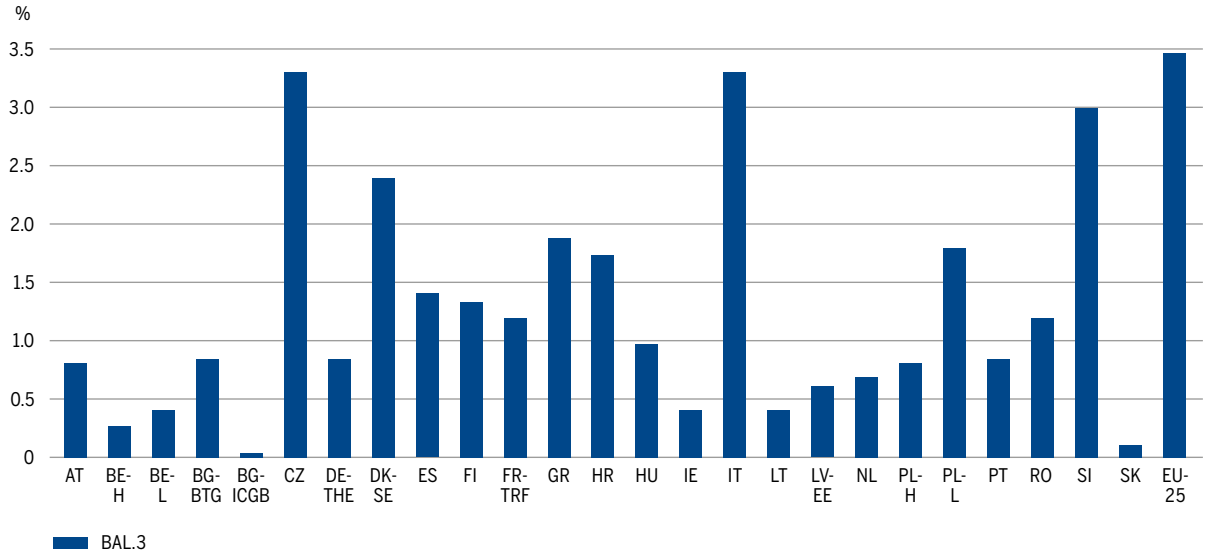

Figure 19: Indicator BAL.3 for GY 2022/23

Finally, **indicator BAL.4 is used to analyse the average marginal cost borne by the network users for being imbalanced.** The methodology to calculate indicator BAL.4 used in the Third and Fourth Effect Monitoring Reports has been adjusted by replacing the average daily Weighted Average Price (WAP) with an weighted average daily WAP (based on network users imbalance volumes LONG and SHORT accordingly for the 2 indicators on LONG and SHORT positions in order to base the calculation of the indicators on the same volume). Considering the specificities of each balancing regime and the different underlying determination of the imbalance charges in each balancing zone, the analysis of indicator BAL.4 is not intended to provide a price comparison between balancing zones, but to give a general overview of the ratio in each balancing zone.

It is noted that in certain balancing zones the average marginal cost for network users to be imbalanced corresponds to the level of the small adjustment, which is applied to determine the daily imbalance charges[1]. For others, the deviation of the average buy and sell prices from the daily market price varies between 1 % and 22 % and −1 % and −20 % for buy and sell prices respectively. Also, this indicator seems to be negatively impacted by the geopolitical situation.

While there are only 5 countries offering LFS, it can be observed that the usage of LFS has a positive impact for the network user in terms of average cost paid per imbalanced MWh of gas.

1 This case applies to Bulgaria – ICGB, Poland (H-gas and L-gas) and Slovenia.

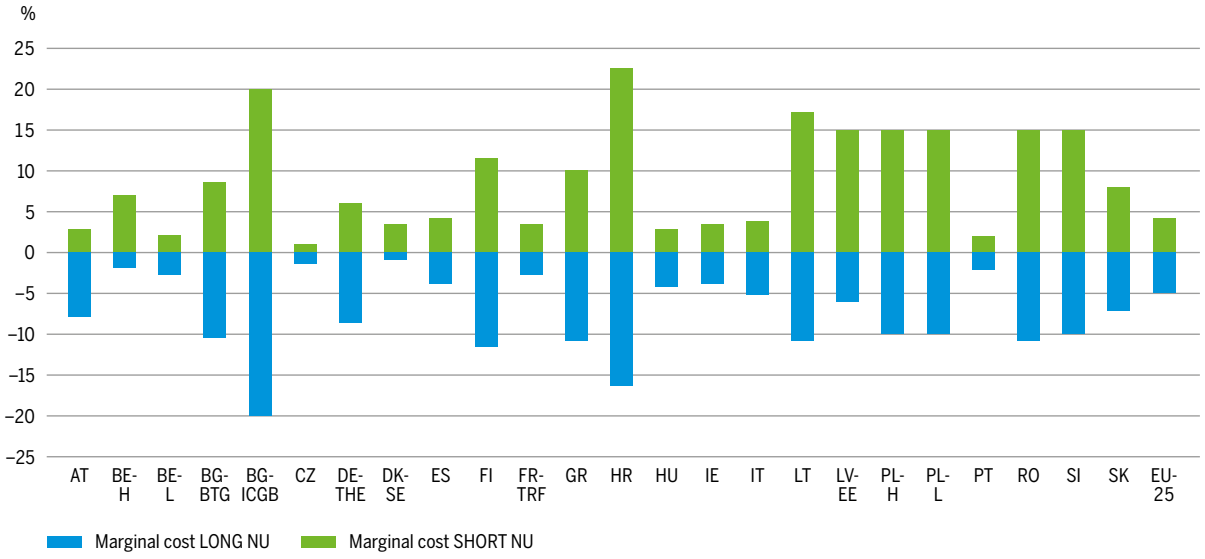

Figure 20: Indicator BAL.4 for GY 2022/23

Domestic consumption across Europe fell in GY2022/23 by some 20 % compared to GY 2020/21 (see figure 21 below). This eventually was driven by high energy prices on the one hand and by European policy on the other hand (save gas for a safe winter regulation from 2022 which aimed at a reduction of 15 % on energy consumption). Market volume and gas volume subject to balancing decreased even further.

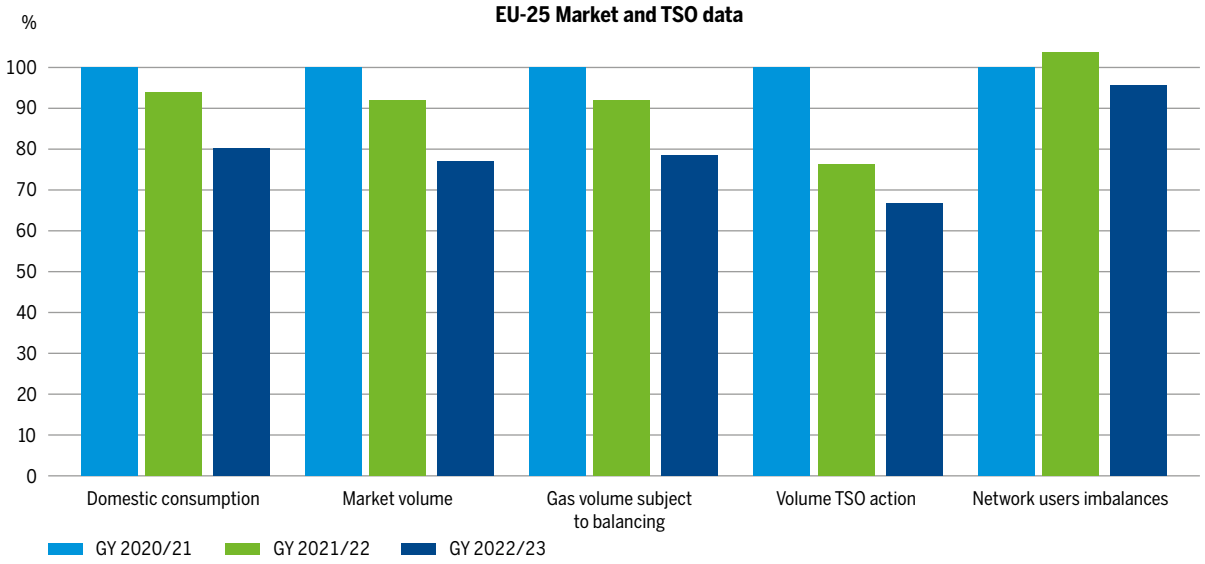

Figure 21: Development of EU-25 Market and TSO data from GY 2020/21 to GY 2022/23

Figure. 22 gives an overview of the BAL indicators on a European level and are a consequence of the development of the data displayed in figure 21.

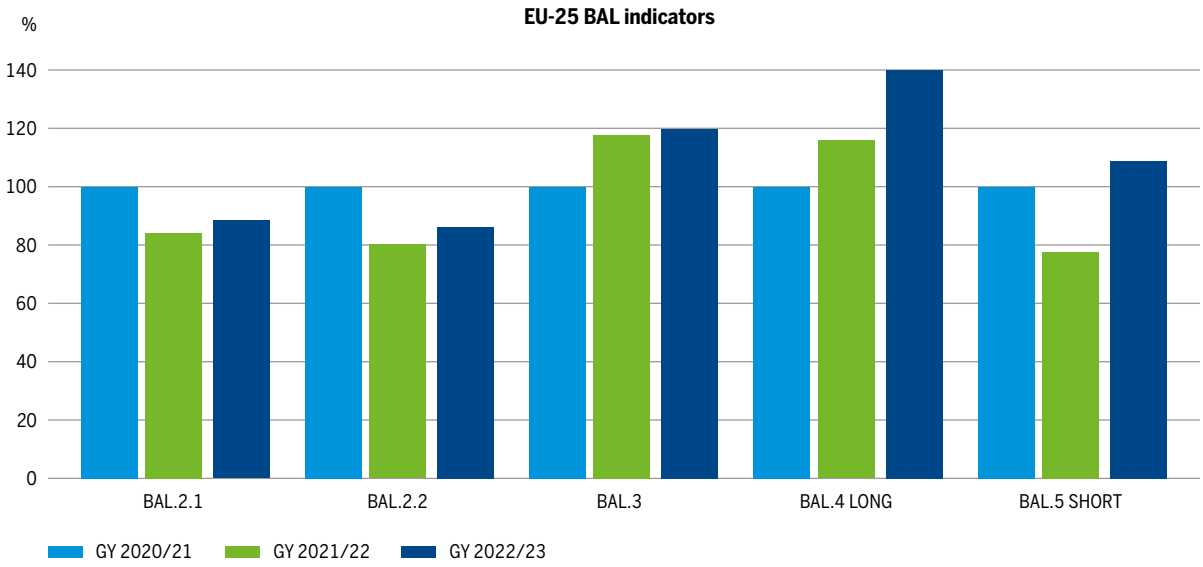

Figure 22: Development of EU-25 BAL indicators from GY 2020/21 to GY 2022/23

While it would be of interest to investigate how flow pattern from Russian gas to Europe and cross border gas flow between the EU-25 have changed, this would go beyond the scope of this report. However, it is possible to find the latest developments in this regard on ENTSOG's gas flows dashboard[1].

Also, an investigation on the effects of recent mergers of balancing zones in Bulgaria and Germany would have had its merits. However, it seems unrealistic to draw clear conclusions on the impact of the mergers on balancing activities considering the unusual market environment of the last two years.

1 https://www.ENTSOG.eu/reco-system

Picture courtesy of FGSZ

6

STRATEGY, POLICY AND COMMUNICATION

As Europe continued its efforts in 2023 to diversify supply sources and accelerate the energy transition, ENTSOG gas TSO members worked to decarbonise the gas grids, through stakeholder engagement and progress with the development of infrastructure repurposing for renewable and low carbon gases. The major task of the Strategy, Policy and Communication (SPC) business area in 2023 was therefore to facilitate this stakeholder dialogue and value chain cooperation particularly on the relevant legislative developments. These included the Hydrogen and Decarbonised Gas markets package, monitoring activities related to the Net-Zero Industry Act (NZIA) in the frame of the EU Industrial Policy, the EC's upcoming strategy on CCUS, as well as the potential impact of changes to Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT).

The SPC business area addressed:

- the identification of strategic aspects,
- policy monitoring,
- communication service.

The SPC business area supported managerial activities by provision of information sharing of resources, networks and relevant knowledge to organise internal ENTSOG strategic debate. SPC oversaw promotion of ENTSOG activities to its members and the external environment, by involving relevant stakeholders, by contributing to consultations, participating in conferences and fora as discussion partner or speaker, but also by maintaining a close dialogue with media representatives.

Furthermore, SPC engaged in dialogue with the hydrogen project promoters and stakeholders under the Transmission and Distribution Roundtable of the Clean Hydrogen Alliance and facilitating updates of the joint Hydrogen Infrastructure Map with other partner associations. To promote Energy System Integration, SPC coordinated with a wide range of stakeholders, including ENTSO-E and Hydrogen Europe to promote the integration of all energy carriers. The business area monitored numerous EC studies, consultations and stakeholder workstreams including dialogue ahead of Madrid, Florence and Copenhagen Fora and the newly establish CCUS Forum. The area coordinated all the external communications of ENTSOG, including management and preparation for public appearances related to the future of the European infrastructure.

ENTSOG SPC developed and managed relevant partnerships with research centres, for example: Florence School of Regulation, Copenhagen School of Energy Infrastructure, New Energy Business School and national/international think tanks. SPC also cooperated with DSOs to ensure TSO-DSO exchange of information.

ENTSOG hosted and co-hosted a number of events: including its Annual Conference in December and GRIDTech 2023 and contributed to many of the EC/stakeholders hosted events, e.g., Madrid, Copenhagen Forum, Florence Forum, CCUS Forum and the Fourth PCI Energy Days.

SPC also coordinated the ENTSOG Annual Report and the ENTSOG Annual Work Programme, with input from the ENTSOG business areas.

WORK STRUCTURE

The ENTSOG GHP TF was responsible for coordinating ENTSOG's activities related to work on the parts of the European Green Deal – legislative actions, policy communications, action plans announced by the EC or other, as requested by the ENTSOG Board.

Figure 23: GHP Task Force with Strategy, Policy and Communication area

The TF was established to be active at least to the end of the work on the Green Deal regulatory and legal developments.

The TF met on a monthly basis, with an option for ad-hoc meetings, if required. The TF was managed by the ENTSOG SPC, with close cooperation of other ENTSOG business areas. Some ad-hoc activities were addressed to the GHP TF, as determined by the Board and/or GA.

ACTIVITIES

The GHP Task Force was responsible for coordinating ENTSOG's activities related to work on the parts of the European Green Deal which will be relevant for and impacting the gas infrastructure. In 2023, the Task Force coordinated these activities in close cooperation with the relevant ENTSOG Working Groups, the ENTSOG business areas and based on the strategic guidance from ENTSOG's Board.

In 2023, the TF was responsible for providing EU policy proposals and updates on the preparations for the European Green Deal developments – specifically on the Hydrogen and Decarbonised Gas Market package, NZIA and in preparation for the upcoming EU strategy for CCUS. The TF informed ENTSOG members on all the relevant EC studies forming the background to any associated impact assessments and changes in the priorities.

In order to understand the impact of the goals announced by the EC, ENTSOG conducted the analytical work and communicated with stakeholders via ENTSOG's Future of Gas Grids Panel and within the European Commission-led Investors Dialogue and Clean Hydrogen Alliance. Together with co-chairs of Transmission and Distribution Round Table within Clean Hydrogen Alliance, ENTSOG finalised its work on the "Learnbook on Hydrogen Supply Corridors", published in April 2003 and the "Learnbook on Hydrogen Imports to the EU" in December 2023. Within the scope of ENTSOG's Advisory Panel for Future of Gas Grids, SPC fostered exchanges on several aspects of best practices to transition gas grids to reach the targets identified in the REPowerEU – 20 million tonnes of renewable hydrogen and 35 bcm of biomethane by 2030.

The TF provided updates about the positions of important stakeholders, including electricity, gas and hydrogen value chain representatives. The TF provided regular updates to the ENTSOG GA, ENTSOG Board and cooperated with other relevant WGs, specifically MAR WG.

In addition, the TF monitored the evolving narratives of electricity, hydrogen, industry stakeholders and NGOs on the future energy system, including the voice of particular EU Member States and scenarios/technology/innovation experts.

Picture courtesy of Gassco

THE KEY ACTIVITIES OF THE GHP TASK FORCE FOR 2023

1. STRATEGY PROPOSALS

- Continued strategic focus for the potential impacts on the Hydrogen and Decarbonised Gas Markets on recast Gas Regulation and Gas Directive.
- Planning, technical, market and financial considerations for the repurposing of gas grids to transport CO_2.
- Net zero goals within the framework of the EU Industrial Policy

2. POLICY UPDATES

- Monitored key energy and climate policy/regulatory developments put forward by EU institutions – revision of the Renewable Energy Directive, and the Hydrogen and Decarbonised Gas Market package, preparation for the planned and upcoming EU strategy for CCUS.
- Monitored and engaged where relevant to EU analytical works (EC studies and stakeholder engagement processes). Support with the publication of two ECH_2A reports for the Transmission and Distribution Roundtable: "Learnbook on European Hydrogen Supply Corridors" and "Learnbook on Hydrogen Imports to EU".
- Assessment of impact to market participants due to the changes to Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT).

3. EXTERNAL ENGAGEMENT

- Engagement in the European Commission's Clean Hydrogen Alliance's Roundtable on Clean Hydrogen Transmission and Distribution.
- Continued engagement in ENTSOG's Advisory Panel for Future Gas Grids.
- Coordination with hydrogen project promoters, e.g., TSO/DSOs/LSOs and SSOs as well as demand and production stakeholders on the Hydrogen Infrastructure map.
- Hosting GRIDTech 2023 (co-hosted with Eurogas and GIE) to exchange views with storage, LNG, transmission and distribution stakeholders
- Clean Transition Dialogue on Hydrogen event, hosted by EC President Ursula von der Leyen
- ENTSOG Annual conference "15 Years on and 15 Ahead: From Third Energy Package to Hydrogen and Decarbonised Gas Package".

4. COMMUNICATION PROPOSALS

- Provided recommendations on ENTSOG's priorities in dialogue with the European Commission, Parliament, and ACER.
- External and internal communication in response to stakeholder interest and queries.
- Engaged in dialogue with industry, gas and other key EU stakeholders.

5. INFORMATION SHARING

- Provided information material for TSOs in their discussions on gas regulatory framework held at national level.
- Reported to Members on all ENTSOG bilateral, multilateral and public engagement.

Picture courtesy of Enagás

7

ENTSOG MANAGEMENT SUPPORT

The management team has five support groups which provide compliance, financial and other services across the association. These are Legal, Financial, HR, IT and Administration.

ACTIVITIES

In 2023, the Management Support Team continued to provide support to the Business Areas and management in Brussels, and work with ENTSOG members. Support is through the Legal, HR, Finance, and IT functions to ensure there is a robust platform for the activities and deliverables of ENTSOG's Business Areas. They are also responsible for organisation of the meetings of the GA and the Board, as well as those for the Liaison Group, the Legal Advisory Group, and the Financial Committee.

LEGAL

The Legal Team, either internally or together with the Legal Advisory Group (LAG), which meets on a monthly basis, contributes to the work and deliverables of all the Business areas. This includes the interpretation of Network Codes and other legal texts applicable to ENTSOG and the TSOs as well as the support to the other Business areas for addressing Network Codes Functionality Platform issues. Other work undertaken development of regulatory input for the upcoming gas legislative package.

In 2023, the Legal and Corporate Team facilitated the secretariat of the EU-UK Gas TSOs TF, created in 2021, in accordance with Working Arrangements Agreement approved by the decision-making bodies of ENTSOG and of the UK TSOs to comply with the *"Brexit"* Trade and cooperation agreement concluded by and between the EU and the UK. This TF ensures a permanent dialogue between the UK TSOs and ENTSOG.

In 2023, the Legal and Corporate Team with the other areas organised one additional meeting of the External Contact Platform (ECP) in November. The ECP was created by ENTSOG and the Energy Community Secretariat to strengthen the cooperation between ENTSOG and other non-EU gas transmission gas companies. The scope focuses on coordination and technical cooperation between ENTSOG and other non-EU gas transmission system operators, as framed by Regulation 715/2009. The Legal and Corporate Team also assisted the General Director in some bilateral contact with other non-EU delegations.

Finally, the Legal and Corporate Team also ensured the internal day to day way of working of ENTSOG by contributing to the organisation of the GA and Board meetings and assisting the HR, administration and communication services as well as the management. In 2023 the Legal team also prepared the amendments to the ENTSOG's Articles of Association in order to comply with the rules of the new Belgian companies and associations code.

HR AND FINANCE

ENTSOG Human Resources continued with a well-prepared recruitment process, so that the relevant resources and competences were in place to perform the requested activities. ENTSOG has a strong focus on the resource allocation as well as the relevant hand-over processes to ensure the performance of the organization vis-à-vis the required deliverables.

With regards to financial reporting, ENTSOG created and implemented clear and efficient accounting procedures and controls in 2023. ENTSOG's Financial Statement for 2023 is included in this report, the approval of which is supervised by an internal Financial Committee.

IT

In 2023, ENTSOG embarked on a series of IT projects aimed at enhancing efficiency, scalability, and collaboration across its operations. The list of the main IT projects for 2023 include the following:

- Streamlining and fine-tuning of the Azure cloud infrastructure supporting ENTSOG's diverse projects.
- TP Upgrade to newer version of technologies: the database behind the TP was upgraded to the latest version, on-going TP Back and Front-End Upgrade.
- Developing Geographical Information Systems (GIS) software for the System Development projects (built on ESRI ArcGIS).
- ENTSOG migrated the H_2 map development from QGIS to ESRI ArcGIS, enhancing spatial analysis.
- On-going SharePoint upgrade to the latest version.
- PDWS (data warehouse) and TP Performance enhancements.
- Developing the Projects Data Collection Portal for TYNDP and PCI.
- Developing ReCo, the new/updated collaboration tool for emergency situations.
- Code review and upgrade of the Dept tool for Tariffs to align with current business needs.
- Development of the PLEXOS simulation tool for System Development team.
- Improvements to office IT software and hardware.
- Moving reports and visualisations to Microsoft Power BI.

Beside the above listed projects, the IT team also have worked on recurrent projects in 2023 – the TYNDP 2024, Project Submission Portal, Capacity Transmission Map, and Summer/Winter Outlook/Review data collections.

Picture courtesy of Enagás

8

RESEARCH AND DEVELOPMENT AT ENTSOG

Each year, ENTSOG aims to improve and progress its way of working, by assessing its tools, methodologies, and approaches, some of which are summarised in the sections below.

In 2023 and beyond, ENTSOG works closely with its Members to develop innovative products and services to facilitate the future role of gas in the overall European energy mix and to meet energy and climate targets. There will be challenges such as maintaining resilient and diverse security of supply, dealing with fluctuating gas quality, growing renewable, low-carbon and decarbonised gases content, framing the proper conditions for connecting low carbon, decarbonised and renewable gas production, planning for hydrogen, biomethane and CO_2 being used in gas grids or designing new data flows between TSOs and DSOs. Nevertheless, gas systems offer long-distance transportation, long-term energy storage, decarbonisation potential and short-term demand management support tools.

Innovative work continued in 2023 by ENTSOG and its Members, to ensure readiness and facilitate those developments going forward.

JOINT HYDROGEN INFRASTRUCTURE MAP

In April and November 2023, ENTSOG together with GIE, CEDEC, Eurogas, GEODE, GD4S and in cooperation with European Hydrogen Backbone Initiative, updated their joint Hydrogen Infrastructure Map. The map showcases hydrogen infrastructure projects and was prepared based on the mandate received at 36th European Gas Regulatory Forum.

Since the map was first published in December 2022, the number of projects displayed have more than doubled – the latest update at the end of 2023 displayed approximately 450 projects across the hydrogen value chain, approximately two thirds of those projects representing hydrogen demand and production. The map shows that infrastructure is not a bottleneck, rather an enabler, in developing the hydrogen economy. Frequent map updates are essential to reflect the good advancements being made by hydrogen project promoters to decarbonise their activities and to ensure that it is a "living" map comprising the most up-to-date status of the hydrogen projects network.

Link to the map

EUROPEAN CLEAN HYDROGEN ALLIANCE – LEARNBOOKS ON HYDROGEN SUPPLY CORRIDORS AND HYDROGEN IMPORTS

During 2023, ENTSOG as facilitating organisation to the Transmission and Distribution Roundtable of the European Clean Hydrogen Alliance supported with the publication of two reports – in April 2023, the Learnbook on Hydrogen Supply Corridors. This document provides industry expertise and knowledge on the potential development of the six potential hydrogen import corridors as visualised in the REPowerEU Action Plan.

In December 2023, the Learnbook on Hydrogen Imports to EU provided insights into the different import options, each with specific benefits and challenges, and stressed the importance of hydrogen imports to EU to reach European ambitions and goals. ENTSOG also supported the establishment of two new task forces in 2023 – Implementation of Supply Corridors and Financing of Projects. ENTSOG continues to support the activities of ECH_2A.

ENTSO-E/ENTSOG CONSISTENT AND INTERLINKED MODEL DEVELOPMENT

Regulation (EU) 2022/869 states in Article 11(10) that by 24 June 2025 ENTSO-E and the ENTSOG will jointly submit to the Commission and ACER a consistent and progressively integrated model that will provide consistency between single sector methodologies based on common assumptions including electricity, natural gas and hydrogen transmission infrastructure as well as storage facilities, liquefied natural gas and electrolysers. ENTSO-E and ENTSOG in 2021 and in 2022 have worked on the development of a consistent process for the inclusion of an "infrastructure dual assessment" in TYNDPs as well as of a methodology for its application. The aim of this exercise is to already implement the main identified improvements to TYNDP 2022 and to make these available for the sixth Project of Common Interest selection process, without impacting the timeline of ongoing single-sector TYNDPs. The Interlinked Model has progressed into an integrated PLEXOS model consisting of electricity and hydrogen infrastructure, on which CBA analysis on projects submitted to ENTSOG and ENTSO-E can be performed.

DEVELOPMENT OF REGIONAL COORDINATION SYSTEM FOR GAS (RECO) 2.0 PLATFORM

ENTSOG continued its work in 2023 on developments and improvements of the Regional Coordination System for Gas (ReCo) 2.0 platform providing visualisation of a relevant range of data on an EU level to monitor the security of gas supply and to support the TSOs' dispatching centres and ReCo Teams during normal and emergency conditions.

The ReCo 2.0 platform provides TSOs with most relevant information to contribute to a more efficient and secure management of the system. The platform is used by ENTSOG and TSOs during the ReRo Team Europe calls, and on a daily basis, to monitor gas flow patterns, gas demand fluctuations, and to identify any risks to the security of gas supply.

ENTSOG PARTICIPATION IN MARCOGAZ BLENDS STUDY

Marcogaz has published a report with the results of the study on mitigation steps to achieve hydrogen-readiness and cost analysis for the transformation towards hydrogen ready infrastructure for key hydrogen concentrations. ENTSOG has contributed to Marcogaz study and has developed a statement included in the report where ENTSOG welcomes Marcogaz' work and provides qualitative considerations on retrofitting/repurposing gas grids for the transport of hydrogen to complement the report. ENTSOG included that, in some circumstances, additional measures are needed, like pipeline replacements and their corresponding costs, that are important to complement Marcogaz report.

GAS FLOW AND STORAGE DASHBOARD UPDATES

In order to have a more detailed overview of the gas market situation, ENTSOG developed data dashboards to assess the European gas market behaviour, usage of gas storage facilities, and gas flow patterns, which were published on ENTSOG's website for stakeholders' use. The information presented in the dashboard is sourced from ENTSOG's Transparency Platform and GIE's AGSI Transparency Platform. Data are presented in an aggregated form based on the interconnections points, gas supply corridors, and risk groups as defined in the Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 to ensure coherence with the terminology most often used by participants of the European gas sector. ENTSOG regularly updates data for the dashboards, and in 2023 modified these and included additional information, pages, and widgets to satisfy users' needs.

Link to the dashboard

Picture courtesy of Teréga

9

ENTSOG BOARD AND TEAMS

ENTSOG **BOARD**

During 2023, the ENTSOG General Assembly approved the following changes within ENTSOG's Board:

- Replacement of Enagás representative Francisco de la Flor, with **Luis Ignacio Parada**, as of 10 May 2023;
- Replacement of FGSZ representative Szabolcs I. Ferencz, with NET4GAS representative **Andreas Rau**, as of 1 July 2023;
- Replacement of Plinovodi representative Matjaž Sušnik, with Gasgrid Finland representative **Olli Sipilä**.

Listed below are ENTSOG Board members, as of 31 December 2023.

Bart Jan Hoevers, President
(Gasunie Transport Services B.V.)

Artur Zawartko
(GAZ-SYSTEM S.A.)

Pascal De Buck
(Fluxys Belgium S.A.)

Luis Ignacio Parada
(Enagás S.A)

Torben Brabo
(Energinet)

Gaetano Mazzitelli
(Snam Rete Gas S.p.A.)

Con O Donnell
(Gas Networks Ireland)

Andreas Rau
(NET4GAS)

Vladimir Malinov
(Bulgartransgaz)

Olli Sipilä
Gasgrid Finland

Cristina Iancu
Transgaz S.A.

Thierry Trouvé
(GRTgaz)

Christoph von dem Bussche
(GASCADE Gastransport GmbH)

ENTSOG **TEAMS**

MARKET TEAM

From left to right: Manfred Cadez, Laurent Percebois, George Wüstner, Peter Hlusek, Karolina Golonka, Boudewijn van der Molen, Claude Mangin, Alexandra Kiss

SYSTEM DEVELOPMENT TEAM

From left to right: Maria Castro, Dante Powell, Hubert Bolesta, Diana Fathelbajanova, Alexander Kättlitz, Axelle De Cadier De Veauce, Mads Boesen, Thilo von der Grün, Arturo de Onis Romero-Requejo, Joan Frezouls, Kacper Żeromski, Simona Marcu, Alexandra Kiss; above: Pierre Marani, Rafail Tsalikoglou

MANAGEMENT

Bart Jan Hoevers (President), left
Piotr Kuś (General Director), right

SYSTEM OPERATION TEAM

From left to right: Kathrine Stannov, Lorella Palluotto, David Gil, Hendrik Pollex, Douglas Hill, Alexandra Kiss, Elnaz Safi, Viktoria Medvedeva-Tšernobrivaja, Alexandra Kiss; above: Anton Kolisnyk

STRATEGY, POLICY & COMMUNICATION TEAM

From left to right: Roberto Francia, Sara Piskor, Carmel Carey, Koralia Ioannou, Mauro Barbosa

MANAGEMENT SUPPORT TEAM

From left to right: Hubertine Soares, Nicolas Van der Maren, Elisa Asensio, Karolina Golonka, Piotr Kuś, Agata Musial, Sahar Aitlhou, Mauro Barbosa, Maria Dhenin, Bogdan Gugescu

ENTSOG **FINANCIAL STATEMENT 2023**

The Financial Statement 2023 was approved by the ENTSOG General Assembly on 30 April 2024.

Values EUR	Code	2023 01.01.–31.12.2023	2022 01.01.–31.12.2022
BALANCE SHEET AFTER APPROPRIATION			
ASSETS			
FORMATION EXPENSES	20		
FIXED ASSETS	21/28	**83.600,00**	**96.268,76**
Tangible fixed assets (explanation 6.1.2)	22/27	**83.100,00**	**95,768.76**
Furniture and vehicles	24	**66.554,51**	**76,055.99**
Other tangible fixed assets	26	**16.545,49**	**19,712.77**
Financial fixed assets (explanation 6.1.3)	28	**500.00**	**500.00**
CURRENT ASSETS	29/58	**2,506.194.28**	**2,644,411.31**
Amounts receivable within one year	40/41	**131,639.96**	**76,012.57**
Trade debtors	40	**78,530.40**	**76,012.57**
Other amounts receivable	41	**53,109.56**	
Cash at bank and in hand	54/58	**2,339,083.89**	**2,506.194.28**
Deferred charges and accrued income	490/1	**66,260.15**	**62,204.46**
GL accounts not in the standard Belgian schema	AXX		
TOTAL ASSETS	20/58	**2,620,584.00**	**2,740,680.07**

Values EUR		Code	2023 01.01.–31.12.2023	2022 01.01.–31.12.2022
EQUITY AND LIABILITIES				
CAPITAL AND RESERVES		10/15	**1,687,188.88**	**1,687,188.88**
Funds of the association or foundation (explanation 6.2)		10	**619,892.00**	**619,892.00**
Allocated funds and other reserves (explanation 6.2)		13	**300,000.00**	**300,000.00**
Accumulated profits (losses)	(+)/(–)	14	**767,296.88**	**767,296.88**
PROVISION AND DEFERRED TAXES (explanation 6.2)		16		
AMOUNTS PAYABLE		17/49	**1,188,117.03**	**1,053,491.19**
Amounts payable within one year (explanation 6.3)		42/48	**771,393.38**	**710,991.94**
Trade debts		44	**693,568.81**	**626,039.91**
Suppliers		440/4	**693,568.81**	**626,039.91**
Taxes, remuneration and social security		45	**77,824.57**	**84,952.03**
Taxes		450/3	**–68,670.31**	**–57,275.00**
Remuneration and social security		454/9	**146,494.88**	**142,227.03**
Accruals and deferred income		492/3	**416,723.65**	**342,499.25**
GL accounts not in the standard Belgian schema		BXX		
TOTAL LIABILITIES		10/49	**2,875,305.91**	**2,740,680.07**

Values EUR		Code	2023 01.01.–31.12.2023	2022 01.01.–31.12.2022

INCOME STATEMENT

Operating income and charges				
Gross operating margin	(+)/(–)	9900	**1,223,865.61**	**1,626,533.49**
Turnover		70	**9,136,549.13**	**8,738,738.01**
Raw materials, consumables, services and other goods		60/61	**7,912,683.52**	**7,112,204.52**
Remuneration, social security costs and pensions	(+)/(–)	62	**1,443,488.12**	**2,026,664.77**
Depreciation of and other amounts written off formation expenses, intangible and tangible fixed assets		630	**47,351.34**	**70,341.46**
Other operating charges		640/8	**4,175.73**	
Operating profit (loss)	(+)/(–)	9901	**–271,149.58**	**–470,472.74**
Financial income (explanation 6.4)		75/76B	**22,267.26**	**230.28**
Recurring financial income		75	**22,267.26**	**230.28**
Financial charges (explanation 6.4)		65/66B	**5,811.35**	**16,315.93**
Recurring financial costs		65	**5,811.35**	**16,315.93**
Profit (Loss) of the financial year before taxes	(+)/(–)	9903	**–254,693.67**	**–486,558.39**
Taxes on the result	(+)/(–)	67/77	**–28.24**	
Gain (loss) of the period	(+)/(–)	9904	**–254,693.67**	**–486,558.39**
Profit (loss) of the financial year available to be appropriated	(+)/(–)	9905	**–254,693.67**	**–486,558.39**

Values EUR	Code	2023 01.01.–31.12.2023	2022 01.01.–31.12.2022

PROCESS PROFIT / LOSS

Profit (loss) to be appropriated	(+)/(–) 9906	**–254,721.91**	**767,296.88**
Profit (loss) of the financial year available to be appropriated	(+)/(–) (9905)	**–254,721.91**	**–486,558.39**
Profit (loss) carried forward from the previous financial year	(+)/(–) 14P		**1,253,855.27**
Withdrawal from equity: funds, allocated funds and other reserves	791		
Addition to allocated funds and other reserves	691		
Profit (loss) to be carried forward	(+)/(–) (14)	**–254,721.91**	**767,296.88**

PRESS RELEASES AND STAKEHOLDER WORKSHOPS/EVENTS

PRESS RELEASES 2023

13 Jan	ENTSOG publishes the Capacity Allocation Mechanisms (CAM) Network Code "Capacity Auction Calendar" for 2023/2024
17 Jan	System Development Map 2021/2022 published by ENTSOG and GIE
27 Feb	ENTSOG publishes its preliminary draft single-sector Cost-Benefit Analysis (CBA) methodology
06 Apr	ENTSOG publishes its Summer Supply Outlook 2023 (with Winter 2023/24 overview) and Summer Supply Review 2022
11 Apr	ENTSOG publishes draft Ten Year Network Development Plan (TYNDP) 2022 and opens public consultation
17 Apr	European Clean Hydrogen Alliance publish "Learnbook on Hydrogen Supply Corridors"
17 Apr	ENTSOG invites stakeholders to participate at its draft TYNDP 2022 workshop on 25 April 2023
31 May	ACER and ENTSOG propose solution for increased flexibility to book firm gas capacity at interconnection points
31 May	ACER and ENTSOG propose solution for increased flexibility to book firm gas capacity at interconnection points
03 Jul	ENTSOG publishes draft Cost-Benefit Analysis Methodology for hydrogen infrastructure projects following stakeholder feedback
03 Jul	ENTSOG announces change of Board Members
04 Jul	ENTSO-E and ENTSOG launch public consultation on TYNDP 2024 Scenarios Input Parameters and announce stakeholder roundtables
14 Jul	ENTSOG opens public stakeholder consultation on its Annual Work Programme (AWP) 2024
31 Jul	ENTSOG publishes Annex 2 to its Interoperability and Data Exchange Network Code Implementation Monitoring Report
16 Aug	ENTSO-E and ENTSOG publish the list of members of the Scenarios External Technical Advisory Group (Scenarios ETAG)
30 Aug	Call to interested stakeholders to submit new and updated project information for Hydrogen Infrastructure Map
12 Sep	ENTSOG publishes its draft Guidelines for Project Inclusion (GPI) for TYNDP 2024 and opens stakeholder consultation
16 Oct	ENTSOG publishes its Final Guidelines for Project Inclusion (TYNDP 2024)
17 Oct	ENTSOG publishes its Winter Supply Outlook 2023/24 (with Summer 2024 Overview) and Winter Supply Review 2022/2023
16 Nov	GRIDTech 2023 Participants discuss Europe's future gas infrastructure
16 Nov	Joint Hydrogen Infrastructure Map update shows progression of H_2 infrastructure
22 Nov	ENTSOG supplements Marcogaz's study with comment on retrofitting/repurposing gas grids for transport of hydrogen
23 Nov	ENTSOG commences project collection for its Ten-Year Network Development Plan 2024

28 Nov	ENTSOG publishes updated monitoring report of Incremental Capacity Process and Demand Assessment Reports summary
15 Dec	ENTSOG's Annual Conference 2023
18 Dec	ENTSOG publishes the Capacity Allocation Mechanisms (CAM) Network Code "Capacity Auction Calendar" for 2024/2025
19 Dec	ENTSOG publishes its Annual Work Programme 2024
21 Dec	European Clean Hydrogen Alliance publishes "Learnbook on Hydrogen Imports to the EU market"

ENTSOG STAKEHOLDER CONSULTATIONS, EVENTS AND WORKSHOPS 2023

Jan – Mar	FSR /ENTSOG online 7th Gas Network Codes course
25 Jan	9th Advisory Panel for Future Gas Grids
20 Feb	ENTSO-E & ENTSOG TYNDP 2024 Scenarios Process Update Webinar
28 Feb	Joint Hydrogen Infrastructure Map Webinar
14 Mar	Joint ACER and ENTSOG workshop on maximisation and efficient use of gas transmission capacities
15 Mar	ENTSOG workshop on Transparency Publications and REMIT Reporting
27 Mar	ENTSOG public workshop on preliminary draft Cost Benefit Analysis Methodology
25 Apr	TYNDP 2022 Public Consultation until 19 May 2023 and presentation day on 25 April 2023
05 May	10th Advisory Panel for Future Gas Grids
31 May	ENTSO-E and ENTSOG public webinar on electricity and gas adequacy in summer 2023
12 Jun	Webinar on the presentation of the Cyber Awareness Programme Development: AR-in-a-Box
13 Jul	ENTSO-E & ENTSOG TYNDP 2024 Scenarios Stakeholder Consultation Workshop and Stakeholder Roundtables
12 Sep	ENTSOG webinars for presentation of draft Guidelines for Project Inclusion (GPI) in TYNDP 2024
16 Oct	11th Advisory Panel for Future Gas Grids
17 Oct	Third workshop on Data Exchange and Cybersecurity in the energy sector
14 Nov	GRIDTech2023 – Gas Infrastructure Planning: Challenges & Opportunities
15 Nov	ENTSOG Gas Quality Workshop 2023
20 Nov	Webinar: TYNDP 2024 Project Promoter Handbook
13 Dec	ENTSOG Annual Conference 2023 – 15 Years On and 15 Ahead: From Third Energy Package to Hydrogen & Decarbonised Gas Package

LIST OF **ABBREVIATIONS**

ACER	Agency for the Cooperation of Energy Regulators
AEMP	Associations of energy market participants
AR	Annual Report
API	Application Programming Interface
ARIS	ACER's REMIT Information System
AS4	Applicability Statement 4
AWP	Annual Work Programme
BAL KG	Balancing Kernel Group
BAL NC	Balancing Network Code
BRS	Business Requirement Specifications
CAM NC	Capacity Allocation Mechanism Network Code
CAP KG	Capacity Kernel Group
CBA	Cost-Benefit Analysis
CEDEC	European Federation of Local and Regional Energy Companies
CEN	European Committee for Standardisation
CDEST	Common Data Exchange Solution Table
CIO	Central Issuing Office
CMP GL	Congestion Management Procedures Guidelines
CNOT	Common Network Operational Tool
COP 21	The 2015 United Nations Climate Change Conference held in Paris
DAR	Demand Assessment Reports
DSO	Distribution System Operator
EASEE-gas	European Association for the Streamlining of Energy Exchange – gas
EC	European Commission
ECH$_2$A	Learnbook on European Hydrogen Supply Corridors
ECP	External Contact Platform
EEA	European Economic Area
EFTA	European Free Trade Association
EIC	Energy Identification Code
EnC	Energy Community
ENCS	European Network for Cyber Security
ENISA	European Union Agency for Cybersecurity
ENTSO-E	European Network of Transmission System Operators for Electricity
ENTSOG	European Network of Transmission System Operators for Gas
ETR	Energy Transition
EU	European Union
Fit for 55	Set of proposals to revise and update EU legislation
FSR	Florence School of Regulation
FUNC	Gas Network Codes Functionality Platform
GA	General Assembly
GY	Gas Years
GCG	Gas Coordination Group
GD4S	Gas Distributors for Sustainability
Geode	Association of European independent distribution companies of gas and electricity
GIE	Gas Infrastructure Europe
GHG	Greenhouse Gases

GHP	Gas and Hydrogen Package
GIS	Geographical Information System
GO	Guarantee of Origin
GO KG	Guarantee of Origin Kernel Group
GQ & H_2	Gas Quality and Hydrogen
GUI	Graphical User Interface
IAs	Interconnection Agreements
IMR	Monitoring Report
INT WG	Interoperability Working Group
INV WG	Investment Working Group
IP	Interconnection Point
IIP	Innovative Projects Platform
JRC	Join Research Centre
KG	Kernel Group
LAG	Legal Advisory Group
LIO	Local Issuing Office
LNG	Liquefied Natural Gas
MAR WG	Market Working Group
MIG	Message Implementation Guideline
MS	Member State
NC	Network Code
NeMo KG	Network Model Kernel Group
NRA	National Regulatory Authority
OMP	Organised Market Places
PCI	Project of Common Interest
PLEXOS	Energy Analytics and Decision Platform
ReCo	Regional Coordination System for Gas
RED III	Revision of recast Renewable Energy Directive
REMIT	Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency
REPowerEU	A plan of EC for saving energy, producing clean energy and diversifying our energy supplies
RFNBOs	Renewable Fuels of Non-Biological Origin
RRM	Registered Reporting Mechanism
SCN WG	Scenario Working Group
SoS	Security of Supply
SSO	Summer Supply Outlook
SPC	Strategy, Policy and Communication
TAR	Tariff
TAR KG	Tariff Kernel Group
TAR NC	Tariff Network Code
TEN-E	Trans-European Networks for Energy
TF ILM	Task force Interlinked Model
TP	Transparency Platform
TRA WG	Transparency Working Group
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan
UMM	Urgent Market Message
VIP	Virtual Interconnection Point
WG	Working Group
WI	Wobbe Index

COUNTRY CODES (ISO)

AL	Albania
AT	Austria
AZ	Azerbaijan
BA	Bosnia and Herzegovina
BE	Belgium
BG	Bulgaria
BY	Belarus
CH	Switzerland
CY	Cyprus
CZ	Czechia
DE	Germany
DK	Denmark
DZ	Algeria
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
LY	Libya
MA	Morocco
ME	Montenegro
MK	North Macedonia
MT	Malta
NL	Netherlands, the
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RS	Serbia
RU	Russia
SE	Sweden
SI	Slovenia
SK	Slovakia
TM	Turkmenistan
TN	Tunisia
TR	Turkey
UA	Ukraine
UK	United Kingdom

ADDITIONAL **NOTE**

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