



# ANNUAL WORK PROGRAMME

---

2025



# TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>4</b>
<b>2</b>	<b>SUMMARY OF ENTSOG'S ACTIVITIES IN 2025 .....</b>	<b>7</b>
2.1	Network Codes and Guidelines .....	8
2.2	Scenarios and Infrastructure .....	8
2.3	Security of Supply .....	9
2.4	Energy Transition .....	10
2.5	Management Support.....	11
<b>3</b>	<b>NETWORK CODES AND GUIDELINES .....</b>	<b>13</b>
3.1	Capacity Allocation Mechanisms Network Code .....	13
3.2	Balancing Network Code .....	16
3.3	Tariff Network Code.....	17
3.4	Interoperability and Data Exchange Network Code .....	19
3.5	Congestion Management Procedures Guidelines .....	24
3.6	Transparency Guidelines.....	25
3.7	Functionality Process .....	28
3.8	Supporting Activities.....	29
3.9	Future Network Code Development and Market Analysis .....	29
<b>4</b>	<b>SCENARIOS AND INFRASTRUCTURE .....</b>	<b>31</b>
4.1	Objectives .....	31
4.2	Key Deliverables and Activities .....	32
4.3	Supporting Activities.....	34
4.4	Programme of Activities.....	35
<b>5</b>	<b>SECURITY OF SUPPLY .....</b>	<b>37</b>
5.1	Objectives .....	37
5.2	Key Deliverables and Activities .....	38
5.3	Supporting Activities.....	40
5.4	Programme of Activities.....	41
<b>6</b>	<b>ENERGY TRANSITION.....</b>	<b>43</b>
6.1	Objectives .....	45
6.2	Key Activities and Deliverables .....	46
6.3	Programme of Activities.....	47
<b>7</b>	<b>RESEARCH &amp; DEVELOPMENT .....</b>	<b>49</b>
7.1	Objectives .....	49
7.2	Key Deliverables and Activities .....	49
7.3	Programme of Activities.....	51
<b>8</b>	<b>ENTSOG SUPPORTING ACTIVITIES.....</b>	<b>53</b>
8.1	Objectives .....	53
8.2	Key Deliverables and Activities .....	53
<b>9</b>	<b>ANNEX: OVERVIEW OF ENTSOG'S REGULATORY FRAMEWORK FOR ITS TASKS .....</b>	<b>59</b>
<b>10</b>	<b>ABBREVIATIONS .....</b>	<b>62</b>
<b>11</b>	<b>ADDITIONAL NOTE .....</b>	<b>63</b>
<b>12</b>	<b>IMPRINT .....</b>	<b>63</b>



# 1 INTRODUCTION

ENTSOG was created in December 2009 as part of the implementation of the European Union's Third Energy Package. This document represents the 2025 edition of the Annual Work Programme (AWP), as required by the Hydrogen and Decarbonised Gas Market Regulation. An Annex has been included to provide an overview on the legal basis for ENTSOG's primary tasks.

ENTSOG's main tasks since its establishment until 2024 were based on Regulation (EC) 715/2009 and including the development and implementation monitoring of network codes, development of its Ten-Year Network Development Plans (TYNDP) (in cooperation with ENTSO-E for scenario development) and assessment of European security of supply, through preparation of Summer Supply Outlook and Winter Supply Outlook reports. ENTSOG had also been tasked with the coordination of network operations under normal and emergency conditions. Many of these same tasks are also required under the Hydrogen and Decarbonised Gas Market Regulation (referred to hereafter in this section as the 'Regulation'), while now also accounting for the analysis, monitoring and reporting relating to renewable and low carbon gases, such as biomethane.

Regarding the TYNDP, the Regulation requires ENTSOG to develop the TYNDP 2026 with two separate chapters, one for hydrogen and one for natural gas. As from 1 January 2027, ENTSOG will adopt the TYNDPs for natural gas only, which will include a European supply adequacy (of the natural gas network) outlook. This outlook will also provide information on the monitoring of progress on the annual production of sustainable biomethane.

The Regulation also tasks ENTSOG to elaborate any network codes requested by European Commission, as was the case for Regulation (EC) 715/2009. ENTSOG will continue to actively participate in the further development of the Network Codes and Guidelines through the Functionality Process as well as through any formal regulatory amendment process and any task given via new legislation. ACER initiated the process to review the Capacity Allocation Mechanisms Network Code (CAM NC) in April 2024 and ENTSOG is supporting this process, with the official legislative procedure for amendment expected to take place in 2025.

For the first time, ENTSOG is also required to adopt recommendations to TSOs on technical cooperation with Distribution System Operators (DSOs) and Hydrogen Network Operators (HNOs). Additionally, ENTSOG is required to adopt a gas quality monitoring report by 1 January 2025 and in this regard, ENTSOG aims to provide in a qualitative manner the current and expected developments of gas quality parameters relevant for the gas grid, including hydrogen blends.





The Regulation also introduces new transparency obligations related to gas quality. Annex I states that methane, hydrogen and oxygen content must be published by TSOs in addition to Wobbe Index (WI) and Gross Calorific Value (GCV). The new transparency requirements will necessitate the development of TSOs' projects and ENTSOG projects enabling the Transparency Platform to be ready to include these new gas quality parameters, accessible to general stakeholders. Furthermore, ENTSOG is required to publish a report that outlines the quantity of renewable gas and low-carbon gas injected into natural gas network.

As in the past, to ensure ongoing security of supply resilience, ENTSOG is tasked by the Regulation to adopt CNOTS to ensure the coordination of network operation in normal and emergency conditions, as well as to adopt recommendations relating to coordination of technical cooperation between EU and third-country TSOs. ENTSOG continuously monitors the implementation and functionality of published CNOTS and will update or develop new CNOTS, if required.

As for previous years, ENTSOG will consult and publish its Annual Work programme to include a description of any network codes to be prepared, a plan on coordination of the operation of the network, and a list of R&D activities being undertaken by the ENTSOG team to continuously improve our way of working. The ENTSOG Annual Report will be published annually, as before, to include the results of the analysis the implementation of network codes and guidelines adopted by the EC.

Besides delivering on the regulatory tasks, ENTSOG will focus on strategic topics relating to policies such as the EU-wide 2040 climate target and the Industrial Carbon Management (ICM) strategy. ENTSOG will continue to regularly engage with EC, ACER, industry stakeholders and ENTSOG's members to ensure a constructive and effective mutual dialogue. In addition to usual workshops and prime movers' groups planned, ENTSOG will facilitate the stakeholder discussions via its Advisory Panel for Future Gas Grids and the European Clean Hydrogen Alliance Roundtable on Clean Hydrogen Transmission and Distribution, among others.

Most significantly, the ENTSOG team will undertake the necessary activities to support the achievement of EU goals of competitiveness, security of supply and sustainability. With the formal establishment of European Network of Network Operators of Hydrogen (ENNOH), ENTSOG can provide support to the work undertaken by the HNOs and the ENNOH team, as needed. The structure of ENTSOG with the embedded expertise of its members, as well as of its Brussels office, will continue to play a pivotal role in the further development of the European gas markets and the future of gas grids. ENTSOG progresses its work as a proactive, trusted adviser on gas transmission related topics on a European level in 2025 and beyond.





## 2 SUMMARY OF ENTSOG's ACTIVITIES IN 2025

ENTSOG's main activities can be described using the following four headings:

- ▲ **Networks Codes and Guidelines (Section 3)**
- ▲ **Scenarios and Infrastructure (Section 4)**
- ▲ **Security of Supply (Section 5)**
- ▲ **Energy Transition (Section 6)**

The Annual Work Programme (AWP) had previously primarily focused on the regulatory tasks assigned by the Third Energy Package (Regulation (EC) No 715/2009), including the development process of the network codes, a cornerstone of the organisation's activities. The publication of the Hydrogen and Decarbonised Gas Market legislation in the Official Journal of European Union allows ENTSOG to clearly plan its workload.

On this basis, ENTSOG efforts for 2025 continue on monitoring the implementation and effects of the established Network Codes and Guidelines, and elaborating any network codes requested by the European Commission (EC) – these are addressed in Section 3 of this document. The joint activity of managing the Functionality Process with ACER and Transparency Guidelines (including on the Regulation on Wholesale Energy Market Integrity and Transparency, or 'REMIT') is also included in Section 3.

Other regulatory tasks include the elaboration of the Ten-Year Network Development Plan (TYNDP), providing regular information on gas supply and demand for the European market and delivering common operational tools to ensure network security and reliability. These are described in Sections 4 and 5.

Section 6 outlines ENTSOG's decarbonisation efforts to address the climate targets and describe how the gas grid can facilitate the transport of gases accelerating the energy transition, including biomethane, CO<sub>2</sub> and hydrogen.

Research and Development activities undertaken by ENTSOG are described in Section 7.

Details on ENTSOG's internal supporting organisation are provided in Sections 8 of this document.

Each topic in Section 3–7 includes objectives, key deliverables and activities and a programme of activities for 2025. ENTSOG's key work areas and deliverables are highlighted in Sections 2.1 to 2.5 below and summarised in the 'Programme of Activities' tables in each section.

A summary of regulatory references is included in the Annex – Section 9.

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## 2.1 NETWORK CODES AND GUIDELINES

In 2025, ENTSOG will continue to provide help and support to its Members and other market participants on Network Code and Guideline-related topics and will maintain monitoring activities. ENTSOG will work with ACER in providing joint solutions to issues posted by stakeholders on the Gas Network Codes Functionality Platform. On the basis of new legislation, for example the Hydrogen and Decarbonised Gas Market Package – as well as amendments to existing Network Codes – ENTSOG will support the EC and ACER, as required.

Interoperability work in 2025 includes the development, support, and maintenance of Common Network Operation Tools (CNOTs) for data exchange. ENTSOG will continue to work in close cooperation with ACER, EC, Energy Community, EASEE-gas and other stakeholders on all matters relating to Network Code and Guidelines. As mentioned above, this includes the work related to possible revisions of Network Codes and Guidelines.

Activities undertaken for the Transparency Guidelines and REMIT topics relate mainly to the management of the transparency and reporting obligations including TSOs' publications on their websites, on the ENTSOG Transparency Platform

(TP) and data reporting to ACER REMIT Information System (ARIS). From a TP perspective, work will be undertaken to analyse stakeholder feedback and implement new functionalities on the Platform that will improve the usability and user-friendliness of the published data. ENTSOG and its TSO members will continue their efforts to improve data quality and completeness and delivering on their REMIT obligations. Additional support will be provided to the TSOs from Energy Community Contracting Parties as they advance their efforts on transparency publications, including potential publication on ENTSOG's TP.

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## 2.2 SCENARIOS AND INFRASTRUCTURE

In 2025, ENTSOG will continue to work on the TYNDP 2024. As part of the project-specific Cost-Benefit Analyses (PS-CBA) of candidates for the status of Project of Common Interest (PCI) and Project of Mutual Interest (PMI) of the hydrogen category, ENTSOG will prepare Project-Fiches. The publication of the Project Fiches is expected in the first quarter of 2025. In parallel to the PS-CBA process, ENTSOG will support the EC in the second PCI/PMI process under the revised TEN-E.

In addition, during the first half of 2025, ENTSOG will work on the TYNDP 2024 System Assessment for other simulation cases besides the reference cases<sup>1</sup>. Once prepared, all parts of the TYNDP 2024 except for the Hydrogen Infrastructure Gaps Identification (IGI) report and the Project Fiches will be publicly consulted in 2025. If needed, ENTSOG will adapt the draft IGI report in 2025. The adaption will consider the opinions received from ACER, Member States, and the EC.

Following the public consultation described above and a potential adaption of the IGI report, the draft TYNDP 2024 will be submitted to ACER for opinion. After receiving ACER's opinion, ENTSOG will prepare the final TYNDP 2024 that will be published in 2025.

During 2025, ENTSOG will work to adapt ENTSO-E's and ENTSOG's consistent and Interlinked Model (ILM) for future TYNDPs.

In the second half of 2025, ENTSOG will start work on the TYNDP 2026. This includes the preparation phase of the project data collection, including 'Guidelines for Project Inclusion for TYNDP 2026'. In addition, ENTSOG will prepare the project portal for the TYNDP 2026 project data collection. As part of TYNDP 2026, the supply adequacy outlook will include monitoring of the progress on the annual production of sustainable biomethane.

As outlined in the Hydrogen and Decarbonised Gas Market Package, ENTSOG will involve the European Network of Network Operators for Hydrogen (ENNOH), once established, in its TYNDP work.

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<sup>1</sup> The reference cases are those using the National Trends+ scenario for 2030 and 2040, as considered in the Infrastructure Gaps Identification (IGI) report and in the PS-CBA process.



## 2.3 SECURITY OF SUPPLY

ENTSOG continues its assessment of the European security of supply, through preparation of several deliverables in 2025: as required by the Hydrogen and Decarbonised Gas Market Package, ENTSOG will adopt the Summer Supply Outlook 2025 with Winter 2025/26 Overview, Summer 2024 Review, as well as the Winter Supply Outlook 2025/2026 with Summer 2026 Overview, and Winter 2024–2025 Review.

Regulation 2017/1938 provides that at least every four years, ENTSOG carries out a Union-wide simulation of supply and infrastructure disruption scenarios, which represents a Union wide risk assessment whose results should be taken into account by competent authorities for the update of their risk assessments, preventive action plans and emergency plans. ENTSOG plans to publish the next edition of the security of supply simulation report in Q3 2025 after approval by the Gas Coordination Group (GCG).

ENTSOG will undertake work on facilitating the existing Regional Coordination System for Gas (ReCo System for Gas) as a CNOT for emergency conditions and the common incidents classification scale. ReCo will continue its 24/7 exchange platform and coordinating work to help address security of supply challenges in Europe. ENTSOG will continue to support the EC and the GCG in implementing security of supply measures<sup>2</sup>, developing adjustments and new documentation, in particular by assisting, if requested, in preparing and implementing solidarity principles, regional emergency plans, preventative action plans, the

market correction mechanism and storage filling level targets. Further work is also expected in assisting the Energy Community Secretariat and Contracting Parties in security of supply activities, e. g., SEEGAS steering committee and others.

ENTSOG will monitor the use of the CNOTs for emergency conditions, along with the evolution of operational processes and needs – and will revise them if needed, as required by the Hydrogen and Decarbonised Gas Market Package.

Considering that most EU Member States import natural gas from non-EU countries and that a very large share of those imports originates from, or crosses, third countries to the EU, ENTSOG will further strengthen the cooperation between EU TSOs and third-country TSOs that play an important role in EU gas supplies and contribute to the preparedness for emergencies.

Finally, ENTSOG will also undertake essential ad hoc analysis to support the EC and other stakeholders in the context of the changes after the Russian war against Ukraine and the current geopolitical situation.

<sup>2</sup> Regulation (EU) 2022/1032 of the European Parliament and the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage, as well as requirements of Hydrogen and Decarbonised Gas Market Package.



Picture courtesy of Enagás

## 2.4 ENERGY TRANSITION

In 2025, ENTSOG will continue to participate in and contribute to the realisation of the European decarbonisation and industrial agenda, with a special focus on repurposing of the gas grids towards an all-clean molecules and multi-carrier-system.

Specifically, work continues on the outcomes of injecting increasing volumes of hydrogen, biomethane and CO<sub>2</sub> into the grids. ENTSOG will also focus on supporting the TSO Members in their implementation of key legislative files finalised in 2024, such as the Hydrogen and Decarbonised Gas Market Package, as well as monitoring developments related to the Industrial Carbon Management Communication and engage with stakeholders on the forthcoming regulation for CO<sub>2</sub> transport infrastructure.

With respect to the regulatory framework, the implementation of legislation will be at the centre of the works, namely: the Hydrogen and Decarbonised Gas Market Package together with its tertiary Delegated Acts, Network Codes development, Methane Emissions Regulation, and Renewable Energy Directive (RED III, its Union Data Base and certification scheme), REMIT and its Implementing Acts, and policies such as the EU-wide 2040 climate target and Industrial Carbon Management strategy. Core topics include repurposing of gas assets, certification of hydrogen network operators, integrated national and European grids planning, TSO–DSO cooperation (including the requirement by the

Hydrogen and Decarbonised Gas Market Package to adopt recommendations to TSOs on technical cooperation with DSOs and HNOs), unbundling, tariffs, financing, guarantees of origin/certificates, gas quality and hydrogen transport and handling, and security of supply, including cybersecurity and regional cooperation. The Hydrogen and Decarbonised Gas Market Package also requires the adoption of an annual report to include the quantity of renewable gas and low-carbon gas injected into the natural gas system.

The publication of the EU Industrial Carbon Management Communication provides new elements to consider, such as the goal to support CO<sub>2</sub> transport infrastructure under the TEN-E Regulation for cross-border energy projects, and the EC's reference in that Communication to initiate works on a dedicated CO<sub>2</sub> transport regulatory package.

On these and any other relevant topics, ENTSOG will consider initiatives and proposals published by the EC, ACER or other relevant stakeholders, and will liaise internally with different ENTSOG working groups and task forces. ENTSOG will continue working on the principles developed under its 2050 Roadmap for Gas Grids and its Action Plan.

**ENTSOG will continue to engage with stakeholders along the whole value-chain via:**

- ▲ Advisory Panel for Future Gas Grids
- ▲ Prime Mover Group on Gas Quality and Hydrogen Handling
- ▲ Prime Mover Group on Guarantees of Origin and Certification
- ▲ European Clean Hydrogen Alliance Roundtable on Clean Hydrogen Transmission and Distribution
- ▲ European Clean Hydrogen Partnership
- ▲ Investor's Dialogue on Energy Investments
- ▲ EU CCUS Forum (now called the ICM Forum)

## 2.5 MANAGEMENT SUPPORT

In 2025, the ENTSG Management Support team will continue to work with the Business Areas and management in Brussels, and with ENTSG members. Support will be through the Admin, Legal and Corporate Affairs, HR, Finance, and IT functions, to ensure there is a robust platform for ENTSG activities and deliverables.

The Management Support team is responsible for the meetings of the General Assembly and the Management Board as well as coordinating ENTSG publications, e. g., Annual Report and Annual Work Programme (AWP). In addition, the activities of the Liaison Group, the Legal Advisory Group and the Financial Committee are organised by the Management Support team along with the activities of the External Contact Platform (open to non-EU Gas transmission companies), which was created in collaboration with the Energy Community. Additionally, the Management Support team will facilitate the framework for cooperation between ENTSG and the UK TSOs in 2025. In addition, the Management support team will be supporting and coordinating the relevant cooperation with ENNOH, as provided by the Hydrogen and Decarbonised Gas Market Package.

The Annual Report and AWP are the result of combined efforts from the entire ENTSG team – the Annual Report assesses ENTSG's work and achievements retrospectively for each given year. These documents are required by the Hydrogen and Decarbonised Gas Market Package. The ENTSG AWP contains the expected activities for ENTSG in the upcoming year, considering ACER's opinions on ENTSG's work and allowing the interested stakeholders to prepare their activities vis-à-vis ENTSG.







# 3 NETWORK CODES AND GUIDELINES

Regulation (EC) No. 715/2009 requires European-wide Network Codes and Guidelines to be developed by ENTSOG to harmonise the applicable rules aimed at facilitating market integration.

On that basis, ENTSOG has developed several Network Codes and Guidelines and was required to monitor the implementation of the existing Network Codes and Guidelines and their effect on the harmonisation of applicable rules aimed at facilitating market integration and transparent rules. Under the Hydrogen and Decarbonised Gas Market Package this requirement will continue in 2025 and beyond.

More specifically in relation to transparency, specific obligations for gas TSOs had been first introduced through Regulation (EC) No. 715/2009, defining the basic transparency rules further specified in Chapter 3 of Annex I (and its amendments). Reporting obligations have been added following the REMIT Regulation including its Implementing Acts. ENTSOG will also continue to deliver on these requirements and implement necessary updates.

ENTSOG will also continue to actively participate in the further development of the Network Codes and Guidelines through the Functionality Process as well as through any formal regulatory amendment process and any task given via new legislation. In this regard, new Network Codes are expected to be developed as a result of the Hydrogen and Decarbonised Gas Market Package. Additionally, ENTSOG will consider any specific legislative developments arising from the European Commission's 'Fit for 55' legislative package or any other relevant legislation.

With the ongoing consequences of Russia's invasion of the Ukraine in 2022 and its effects on the European gas market, ENTSOG considers that the full implementation of Network Codes and Guidelines in each Member State is of paramount importance, not only from a market perspective, but also from a system operations and security of supply point of view. For this reason, ENTSOG will continue to pay additional attention to compliance with European legislation in this context.

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## 3.1 CAPACITY ALLOCATION MECHANISMS NETWORK CODE

The CAM NC sets up capacity allocation mechanisms for existing and incremental capacity and how adjacent TSOs cooperate to facilitate capacity sales, having regard to general commercial as well as technical rules related to capacity allocation mechanisms.

The amended CAM NC entered into force as Regulation (EU) 2017/459 on 6 April 2017 and repealed the previous Regulation (EU) No. 984/2013. In 2025, ENTSOG will continue to support the implementation of the CAM NC by providing members and stakeholders with advice and guidance throughout the implementation process, as well

as engage in any activities related to amendments to the CAM NC as required by the Hydrogen and Decarbonised Gas Market Package. The official legislative procedure for amendment of the CAM NC is expected to take place in 2025.



### 3.1.1 OBJECTIVES

- ▲ To support the implementation and application of the CAM NC.
- ▲ To monitor and analyse the implementation of the CAM NC and its effect on the harmonisation of applicable rules aimed at easing market integration.
- ▲ To monitor the incremental capacity process started in 2023 according to Chapter V of the CAM NC and provide support to members throughout the different steps of this process.
- ▲ To facilitate activities and provide expert knowledge and guidance to stakeholders related to capacity.
- ▲ To respond to CAM NC-related issues raised on the Functionality Platform, working in close dialogue with stakeholders.
- ▲ To support and assist in the implementation of the CAM NC in terms of regulatory interpretation by relevant EU bodies as well as via knowledge sharing and the dissemination of good practices, including assistance to the Energy Community in implementing the CAM NC.
- ▲ To support any amendment processes to CAM NC.
- ▲ To develop documents/solutions stemming from legal obligations on ENTSG outlined in the CAM NC (including the auction calendar published every year).



Picture courtesy of Teréga



### 3.1.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Publish the 2022-2024 CAM NC Implementation and Effect Monitoring Report in 2025.
- ▲ Support the amendment process of CAM NC and offer expertise to ACER and EC.
- ▲ Where necessary in 2025, support implementation of CAM-related aspects of the Hydrogen and Decarbonised Gas Market Package.
- ▲ Publish the yearly CAM NC Auction Calendar.
- ▲ Issue solutions delivery from the joint ACER and ENTSOG functionality process involving stakeholders.
- ▲ Update the Business Requirements Specification (BRS) CAM if required.
- ▲ Monitor the progress of the incremental capacity process and support members throughout the different steps of this process.
- ▲ Develop ENTSOG positions on capacity-related issues, including responses to public consultations and ACER reports.

### 3.1.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on CAM NC related issues:

CAM NC	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
CAM NC auction calendar	■									■	■	■
Prepare for the 2024 CAM NC monitoring report (implementation & effect) to be published in 2025.	■	■	■	■	■					■	■	■
Support CAM NC amendment process	■	■	■	■	■	■	■	■	■	■	■	■
Incremental Capacity Process – support TSOs with the incremental capacity process	■	■	■	■	■	■	■	■	■	■	■	■
Analysis of ACER reports and other capacity-relevant reports	■	■	■	■	■	■	■	■	■	■	■	■
Monitor the activities and develop ENTSOG positions on capacity-relevant issues, incl. responses to public consultations	■	■	■	■	■	■	■	■	■	■	■	■
Support the Energy community in implementing the CAM NC	■	■	■	■	■	■	■	■	■	■	■	■
Functionality Process for the CAM NC	■	■	■	■	■	■	■	■	■	■	■	■
CAM BRS update (if required)	■	■	■	■	■	■	■	■	■	■	■	■

■ Activity periods

■ Key deliverables available to external stakeholders

■ Undetermined workload

## 3.2 BALANCING NETWORK CODE

The BAL NC applies to balancing zones within the borders of the EU. It establishes rules for natural gas balancing, including network-related rules on nomination procedures, imbalance charges, settlement processes associated with daily imbalance charges, and provisions on operational balancing.

The BAL NC was published in the Official Journal of the European Union on 26 March 2014. The code entered into force on 16 April 2014 with a first implementation deadline of 1 October 2015. However, according to Article 52(1), the application could be postponed until 1 October 2016, if approved by the NRA and provided that no interim measures were applied. As a third option, the BAL NC allowed TSOs to apply interim measures according to Articles

45-50 in the absence of sufficient liquidity on the short-term wholesale market and upon approval by the NRA. Article 45(4) set April 2019 as the deadline for the termination of interim measures.

In 2025, ENTSOG will continue to support the implementation of the BAL NC by providing members and stakeholders advice and guidance throughout the implementation process and any other related topics.

### 3.2.1 OBJECTIVES

- ▲ To support the implementation and application of the BAL NC.
- ▲ To monitor and analyse the implementation of the BAL NC and its effect on the harmonisation of applicable rules aimed at easing market integration.
- ▲ To facilitate activities and provide expert knowledge and guidance to stakeholders related to balancing.
- ▲ To respond to BAL NC-related issues raised on the Functionality Platform, working in close dialogue with stakeholders.
- ▲ To support and assist in the implementation of the BAL NC in terms of regulatory interpretation by relevant EU bodies as well as via knowledge sharing and the dissemination of good practices, including assistance to the Energy Community in implementing the BAL NC.
- ▲ To coordinate with ACER on data exchange and information sharing to monitor the effective implementation of the BAL NC.

### 3.2.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Prepare for the 2024–2025 BAL NC Implementation and Effect Monitoring Report to be published in 2026 and start the data collection.
- ▲ Data collection for ACER's Gas Balancing Dashboard in January/February 2025.
- ▲ Where necessary in 2025<sup>3</sup>, support implementation and discuss developments on BAL related aspects of the Hydrogen and Decarbonised Gas Market Package.
- ▲ Issue solutions delivery from the joint ACER and ENTSOG functionality process involving stakeholders on balancing-related issues.
- ▲ Update the Business Requirements Specification (BRS) for Balancing processes if required.
- ▲ Develop ENTSOG positions on balancing-related issues, including responses to public consultations and ACER reports.

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3 The starting points of selected tasks are subject to the European Commission's Priority List and based on the envisioned implementation of Package provisions

### 3.2.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on BAL NC related issues:

Balancing NC	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
BAL NC monitoring report 2024-2025 (implementation & effect) to be published in 2026												
Support and assistance to TSOs in the implementation of the BAL NC												
Data collection and analysis for ACER's Gas Balancing Dashboard												
Where necessary in 2025, support potential amendments and discuss developments on BAL NC as a result of the new Hydrogen and Decarbonised Gas Market Package												
Analyses of ACER reports (implementation/effect monitoring, market monitoring) and other BAL-relevant reports												
Monitor activities and develop ENTSOG positions on balancing-relevant issues, incl. responses to public consultations and ACER reports												
Support the Energy Community in implementing the BAL NC												
Functionality Process for the BAL NC												

■ Activity periods   
 ■ Key deliverables available to external stakeholders   
 ■ Undetermined workload

## 3.3 TARIFF NETWORK CODE

The TAR NC contributes to set tariffs, or methodologies used to calculate them (which are transparent), considering the need for system integrity and its improvement, reflecting the actual cost incurred, using a non-discriminatory approach, facilitating efficient gas trade and competition, avoiding cross-subsidies between network users, and providing incentives for investment.

The TAR NC on rules regarding harmonised transmission tariff structures for gas was published in the Official Journal of the European Union on 17 March 2017 and entered into force on the 6 April 2017. The application of the TAR NC took place over three dates: 6 April 2017 (chapters I, V, VII, IX, X); 1 October 2017 (chapters VI, VIII); 31 May 2019 (chapters II, III, IV).

In 2025, ENTSOG will continue to support the ongoing implementation and monitoring of the TAR NC by providing members and stakeholders with advice and guidance throughout the implementation process. As there are several provisions in the Hydrogen and Decarbonised Gas Market Package regarding tariffs, ENTSOG will also support the implementation process of these provisions.



3.3.1 OBJECTIVES

- ▲ To support the implementation and application of the TAR NC.
- ▲ To monitor and analyse the implementation of the TAR NC and its effect on the harmonisation of applicable rules aimed at easing market integration.
- ▲ To facilitate activities and provide expert knowledge and guidance to stakeholders related to tariffs.
- ▲ To respond to TAR NC-related issues raised on the Functionality Platform, working in close dialogue with stakeholders.
- ▲ To support and assist in the implementation of the TAR NC in terms of regulatory interpretation by relevant EU bodies as well as via knowledge sharing and the dissemination of good practices, including assistance to the Energy Community in implementing the TAR NC.
- ▲ To develop documents/solutions stemming from legal obligations for ENTSG outlined in the TAR NC (for example, regarding transparency requirements).

3.3.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Prepare for the TAR NC Implementation and Effect Monitoring Report to be published in 2026 and start data collection.
- ▲ Issue solutions delivery from the joint ACER and ENTSG functionality process involving stakeholders.
- ▲ Where necessary in 2025<sup>4</sup>, support implementation and discuss developments on tariff-related aspects of the Hydrogen and Decarbonised Gas Market Package.
- ▲ Develop ENTSG positions on tariff-related issues, including responses to public consultations and ACER reports.

3.3.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on Tariff NC related issues:

Tariff NC	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
TAR NC monitoring report (implementation & effect) to be published in 2026												
Support and assistance to TSOs in the implementation of the TAR NC												
Where necessary in 2025: Support potential amendments and discuss developments on TAR NC or new tariff-related NCs due to the new Hydrogen and Decarbonised Gas Market Package												
Analyses of ACER reports (implementation/effect monitoring, allowed/target revenue, market monitoring) and other TAR-relevant reports												
Monitor the activities and develop ENTSG positions on tariff-relevant issues, incl. responses to public consultations												
Support the Energy Community in implementing the TAR NC												
Functionality Process for the TAR NC												

Activity periods Key deliverables available to external stakeholders Undetermined workload

4 The starting points of selected tasks are subject to the European Commission’s Priority List and based on the envisioned implementation of Package provisions.

## 3.4 INTEROPERABILITY AND DATA EXCHANGE NETWORK CODE

Regulation (EU) 2015/703 established a network code on interoperability and data exchange rules (INT NC) in 2015. An appropriate degree of harmonisation in technical, operational and communication areas is key to overcome potential barriers to the free flow of gas in the European Union.

The INT NC enables the necessary harmonisation in those areas, therefore leading to effective market integration. For that purpose and for facilitating cooperation between adjacent transmission system operators, ENTSOG provides assistance for the harmonised implementation of the INT NC and develops and maintains CNOTs for the technical implementation of Network Codes and Guidelines.

Regarding the Interoperability and Data Exchange Network Code, the Hydrogen and Decarbonised Gas Market Package indicates that the EC may adopt implementing acts establishing network

codes for interoperability rules for the natural gas system, including addressing areas that are not included in the current Network Code. The inclusion of these new areas in the INT NC require that the revision of the NC is considered.

In 2025, ENTSOG will continue to develop preparatory work for the future revision of the INT NC considering the adoption of the revised Hydrogen and Decarbonised Gas Market Package and will engage in any activities related to possible amendments to the INT NC if launched by the European Commission.

### 3.4.1 OBJECTIVES

- ▲ To support the implementation and application of technical, operational and communication harmonised rules.
- ▲ To facilitate and support coordination of technical cooperation between Member States, Energy Community and third-country transmission system operators, as required by the Hydrogen and Decarbonised gas Market Package.
- ▲ To investigate the further steps of harmonisation regarding common data exchange solutions.



## 3.4.2 KEY ACTIVITIES AND DELIVERABLES

### 3.4.2.1 Monitoring of the implementation and functioning of the Network Code on Interoperability and Data Exchange Rules

- Assess the need to develop analysis on the implementation of the Network Code on Interoperability and Data Exchange Rules.
- Analyse any proposals arising from the Functionality Process including validation, categorisation and prioritisation of the issues and develop proposals for improvement or amendment of the Network Codes or Guidelines together with other ENTSOG business areas as well as with ACER and relevant stakeholders.

### 3.4.2.2 Development, support and maintenance of common network operation tools (CNOTs) for data exchange

- Monitor the implementation and functionality of published CNOTs for capacity and congestion and nominations and matching procedures, including the related Business Requirement Specifications, edig@s.xml, implementation guidelines and the technical communication profiles.
- Provide support throughout 2025 for the CNOTs, including delivering an amended version of a given CNOT as and when required.
- Hold a data exchange and cybersecurity workshop related to the implementation of Common Data Exchange Solutions featuring Data Exchange, Communication and Cybersecurity.
- Continue to develop analysis for new gases on the re-use of CNOTs for hydrogen processes.
- Analyse any suitable requests concerning potential Data Exchange harmonisation.
- Maintain cooperation with EASEE-gas, GIE, eDelivery – the EC's eDelivery Building Block, ACER, ENISA and other relevant stakeholders in the field of data exchange and cybersecurity and share appropriate and relevant information.

### 3.4.2.3 Technical cooperation between Member States, Energy Community and third-country transmission system operators

- If required, update recommendations relating to the coordination of technical cooperation between Member States, Energy Community and third-country transmission system operators.
- Support the TSOs of Member States, Energy Community and third countries in the implementation of the INT NC rules and expanding regional cooperation.
- If required, host workshop to discuss future steps for strengthening technical cooperation between Member States, Energy Community and third-country TSOs supplying or transiting gas to the EU.



#### 3.4.2.4 Gas Quality and Hydrogen handling:

- ▲ Continue to work on the implementation of gas quality obligations of the Hydrogen and Decarbonised Gas Market Package.
- ▲ Organise a public workshop on Gas Quality and Hydrogen handling to show the latest advancements in the field of the gas quality and promote the dialogue with stakeholders along the gas value chain.
- ▲ Develop the fifth edition of the Gas Quality Outlook in alignment with TYNDP 2024, showing the potential variability of some gas quality parameters in Europe within the next ten years.
- ▲ Cooperate with CEN Technical Committees (TC) 234 and 408, particularly in:
  - The finalisation of the standard EN16726, with a focus on the Wobbe Index classification system.
  - The development of a CEN standard on hydrogen quality.
  - The work carried out by CEN TC 408 to prepare the next revision of EN 16723 – natural gas and biomethane for use in transport, and biomethane for injection in the natural gas grid.
- ▲ Undertake activities related to the gas transmission network readiness to integrate hydrogen and other renewable and low-carbon gases.
- ▲ Explore the possibilities of deploying a 'smart gas grid' to improve the interoperability of systems and technologies and provide a better gas quality and hydrogen management.
- ▲ Advise on Strategic Research and Innovation Agenda and the Annual Work Plan of the Clean Hydrogen Partnership as part of its Stakeholder Group.
- ▲ Facilitate and monitor the discussions on the potential achievable hydrogen purity levels in repurposed natural gas grids.
- ▲ Further assess the technical challenges for TSOs on Gas Quality management (i.e., oxygen removal, Wobbe Index classification system management, information provision), together with challenges and impact related to the injection of higher amounts of biomethane into the gas grids.
- ▲ Cooperate with stakeholders to define gas quality and hydrogen handling principles (via Prime Movers' set up<sup>5</sup> and/or engagement with other associations' WGs e.g., EASEE-gas, CEN, Marcogaz, GERG, GIE, CEDEC, GEODE, GD4S, Eurogas, etc).

#### 3.4.2.5 Technical Cooperation, Gas Quality Monitoring and Transparency

Besides the new rules that the Hydrogen and Decarbonised Gas Market Package establishes related to the INT NC, there are activities that, not being directly related to the NC, are of technical nature which are included below:

- ▲ Adopt recommendations to TSOs on technical cooperation with DSOs and HNOs.
- ▲ Adopt a gas quality monitoring report by 1 January 2025. The report will show in a qualitative manner the current and expected developments of gas quality parameters relevant for the gas grid, including hydrogen blends.
- ▲ The Hydrogen and Decarbonised Gas Package introduces new transparency obligations related to Gas Quality. Annex I of the Regulation states that methane, hydrogen and oxygen content must be published by TSOs in addition to Wobbe Index (WI) and Gross Calorific Value (GCV). The new transparency requirements established by the Hydrogen and Decarbonised Gas Market Package will necessitate the development of TSOs' projects and ENTSOG projects and the Transparency Platform to be ready to include these new gas quality parameters for public availability.
- ▲ Input into discussions on gas Network Code for Cybersecurity, when required.

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5 Depending on topic-related developments, the engagement could take place either via the continuation of the dedicated Prime Movers' Group on gas quality and hydrogen handling or stakeholder workshops. The Prime Movers' Group is currently in stand-by mode.

### 3.4.2.6 Other Activities

#### 3.4.2.6.1 Operation of the Local Issuing Office (LIO) for Energy Identification Coding scheme

- Management of EIC Codes requests and updates in the ENTSG LIO registry and maintaining the EIC data exchange from/to the Central Issuing Office (CIO/ENTSG-E) and the ENTSG LIO tool.
- Cooperation with ENTSG-E to further streamline and standardise the implementation of the scheme in the gas sector.

#### 3.4.2.6.2 Standardisation work for CO<sub>2</sub> transport

- In 2025, ENTSG will continue to contribute to work focused on the technical aspects of Carbon Capture, Utilisation and Storage (CCUS) and to provide expertise on technical aspects. Moreover, ENTSG will follow and participate in discussion fora for the development of CO<sub>2</sub> composition standards for the transport of CO<sub>2</sub> in pipelines:
- ENTSG will cooperate with the expert group on CO<sub>2</sub> specifications/standards included in the working group established by the EC on CCUS infrastructure part of the EU ICM Forum.
- ENTSG will also cooperate with CEN Technical Committees TC 474 for the development of EU standards on CCUS, including CO<sub>2</sub> quality.

#### 3.4.2.6.3 Methane Emissions Reduction

- Follow the development on the methane emissions reduction process in Europe and will collaborate with other organisations such as GIE, MARCOGAZ, GERG, CEN and Eurogas.
- If required, provide support to TSOs in the methane emissions reduction activities. This support includes, in particular, activities recommended by EC/UNEP for methane emissions reporting and targets setting, as well as dissemination of best practices for the detection, quantification and mitigation of methane emissions.
- During the implementation of the EU Regulation on Methane emissions reduction in the energy sector, ENTSG will follow the process and will be involved in preparation of feedback and other activities to the extent needed (e. g., the development of standards).
- Follow the new R&D developments and monitor the technical discussions regarding hydrogen emissions.

## 3.4.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on INT NC related issues:

Interoperability and Data Exchange NC	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Start preparatory work for the future revision of the INT NC considering the adoption of the revised Gas Regulation												
Support and assist TSOs, the Energy Community and stakeholders in the implementation of the INT NC and relevant CNOTs												
Monitor the implementation and functionality of published CNOTs. Update of CNOTs when required												
Functionality Process for the INT NC												
ITC KG Data Exchange and Cybersecurity workshop												
Deliver an analysis or review of potential solutions in data exchange harmonisation as and when required												

■ Activity periods   ■ Key deliverables available to external stakeholders   ■ Undetermined workload

## 3.5 CONGESTION MANAGEMENT PROCEDURES GUIDELINES

The CMP GLs help free up unused capacity with a view to optimal and maximum use of the technical capacity and the timely detection of future congestion and saturation points. They facilitate cross-border exchanges in natural gas on a non-discriminatory basis.

The CMP GLs were developed by the EC in 2010 and 2011 and approved by the EU Gas Committee on 24 August 2012. The implementation date was 1 October 2013.

ENTSOG will continue to support the implementation of the CMP GLs in 2025, by providing members and stakeholders with advice and guidance

throughout the implementation process, in particular focusing on potential changes to the CMP GLs arising from the Hydrogen and Decarbonised Gas Market Package.

### 3.5.1 OBJECTIVES

- ▲ To support the implementation and application of the Congestion Management Procedures Guidelines.
- ▲ To monitor and analyse the implementation of the CMP GLs and its effect on the harmonisation of applicable rules aimed at easing market integration.
- ▲ To facilitate activities and provide expert knowledge and guidance to stakeholders related to congestion management.
- ▲ To respond to CMP GLs-related issues raised on the Functionality Platform, working in close dialogue with stakeholders.
- ▲ To support and assist in the implementation of the CMP GLs in terms of regulatory interpretation by relevant EU bodies as well as via knowledge sharing and the dissemination of good practices, including assistance to the Energy Community in implementing the CMP GLs.



Picture courtesy of Gas Connect Austria



3.5.2 KEY ACTIVITIES AND DELIVERABLES

- Commence the work on the 2023-2024 CMP GLs Implementation and Effect Monitoring Report to be published in 2025.
- 
- Where necessary in 2025, support implementation of CMP-related aspects of the Hydrogen and Decarbonised Gas Market Package

■

Issue solutions delivery from the joint ACER and ENTSOG Functionality Process involving stakeholders.

■

■

3.5.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on CMP related issues:

CMP Guidelines	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Prepare for the 2023–2024 CMP GL monitoring report (implementation & effect) to be published in 2025.												
Support and assistance to TSOs in the implementation of the CMP GLs												
Where necessary in 2025, support potential amendments and discuss developments on CMP GLs as a result of the new Hydrogen and Decarbonised Gas Market Package												
Analyses of ACER reports (congestion at interconnection points, implementation) and other contractual congestion relevant reports												
Monitor the activities and develop ENTSOG positions on contractual congestion-relevant issues, incl. responses to public consultations												
Functionality Process for the CMP GLs												

■

Activity periods

■

Key deliverables available to external stakeholders

■

Undetermined workload

3.6 TRANSPARENCY GUIDELINES

The energy market liberalisation process, aimed at securing a well-functioning, open and efficient internal market in gas, has significantly changed the gas transmission business and increased the need for transparency. In this respect, specific obligations for gas TSOs had been introduced through Regulation (EC) No 715/2009, which defined the basic transparency rules, further specified in Chapter 3 of Annex I (and its amendments).

The Network Codes have been developed to provide rules and procedures to reach an appropriate level of harmonisation towards efficient gas trading and transport across gas transmission systems in the EU, increasing data publication requirements.

ENTSOG activities on the Transparency topic relate to management of the transparency obligations including TSOs’ publications on their websites and the Transparency Platform and Regulation on Energy Market Integrity and Transparency

(REMIT). Regulation (EU) No. 1227/2011 (REMIT), which was amended in 2024 and its Commission Implementing Regulation (EU) No. 1348/2014, which is set to be amended in June 2025, introduced additional publication and reporting obligations to the market participants, aimed at supporting market monitoring, fostering open and fair competition in wholesale energy markets. The REMIT obligations are also handled by the Transparency team in ENTSOG.

### 3.6.1 OBJECTIVES

The objective of the Transparency activities in ENTSOG is to enhance the transparency of gas TSOs' activities in the European Union. This is realised by the data published on the Transparency Platform (TP) and the TSOs' websites. The requirements for the transparency publications are specified in the Hydrogen and Decarbonised Gas Market Package, REMIT and the Network Codes.

The main objectives are to:

- ▲ Further enhance ENTSOG Transparency Platform with functionalities improving the usability and user-friendliness of the published data while taking cost-efficiency into account.
- ▲ Monitor, analyse and apply the legal transparency and reporting requirements coming from EU legislation such as:
  - Hydrogen and Decarbonised Gas Market Package
  - Regulation (EU) No 1227/2011, as amended by Regulation (EU) 2024/1106 Regulation (EU) No 1348/2014
  - Regulation (EU) 2015/703
  - Regulation (EU) 2017/459
  - Regulation (EU) 2017/460
  - Regulation (EU) 2019/942, as amended by Regulation (EU) 2024/1106
- ▲ Cooperate with other ENTSOG business areas to fulfil transparency requirements coming from relevant network codes and liaise with relevant ENTSOG WG to identify synergies in fulfilling these obligations.

### 3.6.2 KEY ACTIVITIES AND DELIVERABLES

In line with the Annual Work Programme 2024, ENTSOG continues to update and improve the ENTSOG Transparency Platform to the benefit of all users and stakeholders. The TP provides technical and commercial data on the TSOs' transmission-relevant points, showing them on an interactive map, in charts, in tables, in downloads, and as 'Application Programming Interfaces' (APIs). Part of this information is also available via 'Really Simple Syndication' (RSS) web-feeds. The information is available free of charge, provided by the TSOs.

ENTSOG continues to work closely with the TSOs to apply the regulation provisions, including the transparency requirements coming from the Network Codes and Guidelines, and REMIT

The following is a list of key activities and deliverables:

- ▲ Implement and apply the updated publication provisions of the Hydrogen and Decarbonised Gas Market Package.
- ▲ Strive to continuously improve the TP user experience based on feedback from public workshops, the Functionality Platform, satisfaction surveys, and the TP 'Submit a question' form.
- ▲ Organise a workshop to receive feedback from stakeholders.
- ▲ Evaluate the communication between ENTSOG and the TP users in terms of newsletters, surveys, and announcements on the Platform.
- ▲ Support TSOs in improving data completeness and consistency in line with legal obligations.
- ▲ As Registered Reporting Mechanism, continue to provide aggregated fundamental data to the ARIS as defined in Article 9(1) of Regulation (EU) 1348/2014.
- ▲ Follow-up on reporting and data collection processes for TSOs and ENTSOG under REMIT obligations. In 2025, this will include activities to fulfil the obligations arising from the revised REMIT regulation.
- ▲ Maintain, together with the gas TSOs, a close working relationship with ACER and support bilateral effort in improving REMIT application. This includes participation in ACER public consultations and surveys on REMIT as well as various stakeholder user groups managed by ACER, e. g., REMIT Expert Groups, RRM User Group, and roundtables for REMIT reporting and inside information disclosure.
- ▲ Contribute and provide input for the development of the REMIT Implementing Acts and Delegated Acts.

### 3.6.3 SUPPORTING ACTIVITIES

ENTSOG will facilitate required data collection processes when required by the legislation, e. g., the information for ACER's 2024 Congestion Monitoring Report. The team will support TSOs from the Energy Community Contracting Parties on their ENTSOG TP transparency publications and provide support to ACER's REMIT teams and ACER stakeholder user groups, e. g., REMIT Expert Group, RRM User Group, roundtables for REMIT reporting and for inside information disclosure etc., with input on the processes and practices on the EU gas market relevant for the REMIT implementation and developments.

ENTSOG will facilitate continuous dialogue with other ENTSOG working and kernel groups to provide support for any ad hoc data requests for possible ACER monitoring or for research studies within ENTSOG. Furthermore, ENTSOG will support the other ENTSOG working and kernel groups on projects related to the usage of information provided by the TSOs in ENTSOG's Professional Data Warehouse (PDWS) including the Regional Coordination System for Gas (ReCo System for Gas).

### 3.6.4 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on Transparency Guidelines related issues:

Transparency Guidelines	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Continuous platform improvements.												
Activities on application of the transparency requirements coming from EU legislation												
Functionality Process for Transparency Guidelines												
Facilitate required data collection processes												
Support the TSOs from Energy Community CPs on REMIT and transparency topics												
Support ACER's REMIT department												
Support to TSOs on data completeness												
Follow-up on REMIT requirements												
Cooperate with ENTSOG business areas on transparency requirements and support with projects concerning TP												
Stakeholder satisfaction survey												
Public workshop on Transparency												

Activity periods

Key deliverables available to external stakeholders

Undetermined workload

### 3.7 FUNCTIONALITY PROCESS

The established Functionality Process, co-managed by ENTSOG and ACER and supported by the European Commission, is aimed at reaching commonly recommended solution(s) on implementation and operational issues within the existing Gas Network Codes and Guidelines which already entered into force.

The central tool of the process is the Gas Network Codes Functionality Platform ([www.gasncfunc.eu](http://www.gasncfunc.eu)) which was launched in February 2016.

After an issue has been reported, ACER and ENTSOG will jointly validate, categorise, and prioritise the raised issues and produce solutions taking into account stakeholders' views.<sup>6</sup> The process includes data collection, launch of public consultations, and analysis of results.

#### 3.7.1 OBJECTIVES

ACER and ENTSOG provide stakeholders with the Functionality Platform (FUNC Platform) to raise and discuss implementation and operational Network Codes and Guidelines issues and give them an

opportunity to be involved in developing solutions, which, at the end of the process, will aim at commonly recommended non-binding guidance.

#### 3.7.2 KEY ACTIVITIES AND DELIVERABLES

It is anticipated that ENTSOG will provide further joint ACER and ENTSOG solutions to issues posted by the stakeholders on the Functionality Platform in 2025<sup>7</sup>.

In addition to the content work of producing issue solutions, ACER and ENTSOG also actively work on improving the Functionality Process itself by making it more efficient, transparent, and easier to use for the involved stakeholders. This work will continue in 2025.

#### 3.7.3 PROGRAMME OF ACTIVITIES

The following table shows expected timeline and key activities on the Functionality Process:

Functionality Process	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Develop and publish issue solutions												
Process improvement												

Activity periods

6 As of May 2024, 22 issues have been reported on the FUNC Platform, with all 22 of them having been solved, closed, or withdrawn by the issue poster.

7 Issues related to CAM NC will be included in the amendment work and discussions of the CAM NC amendment process, which ACER launched in April 2024. Therefore, CAM NC activities on the FUNC platform are paused until the end of the CAM NC amendment process



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## 3.8 SUPPORTING ACTIVITIES

### 3.8.1 STAKEHOLDER ENGAGEMENT ON NETWORK CODES

In the past years, ENTSOG has participated at the Network Code Implementation and Monitoring Group (NC IMG), a forum for high-level strategic coordination, with the European Commission, ACER, and the European Network of Transmission System Operators for Electricity (ENTSO-E). This group oversaw the implementation and implementation monitoring of electricity network codes and gas network codes in the EU.

Going forward, ENTSOG aims to continue transparent dialogue and effective information exchange between EC, ACER and the ENTSOs as well as ENNOH on the integration of the European electricity, gas and hydrogen markets and the important topics related to legislative files – for example, 'Fit for 55' initiative, Hydrogen and Decarbonised Gas Market Package, and the Net Zero Industry Act. This dialogue will help to reinforce the participation of the renewable energy market and drive the investments necessary to provide security of supply.

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## 3.9 FUTURE NETWORK CODE DEVELOPMENT AND MARKET ANALYSIS

With the Hydrogen and Decarbonised Gas Market Package, ENTSOG is tasked with the development of new Network Codes or amendments of existing Network Codes. The following activities are subject to decision and timescales defined by the European Commission:

- ▲ Tariff Network Code amendment or new Network Code related to natural gas transmission tariffs discounts.
- ▲ Network Code on rules for determining the value of transferred assets and the dedicated charge (development is jointly by ENTSOG and ENNOH).

Furthermore, there may be possible involvement in EU discussions on market-related topics such as: the EC evaluation of the impact of zero tariffs for natural gas transmission IPs; the application of NCs at points with third countries; provisions and derogations on tariff discounts for renewable and low-carbon gases, and any subsequent impact on Inter-TSO Compensation mechanisms.

ENTSOG is ready to support the EC and ACER in developing and implementing the tasks and deliverables mentioned above. As some tasks are dependent on the European priority list, a detailed programme of activities and timelines will follow in later editions of ENTSOG's Annual Work Programmes.





## 4 SCENARIOS AND INFRASTRUCTURE

The deliverables and activities outlined in this section reflect ENTSOG's obligations under the Hydrogen and Decarbonised Gas Market Package, (EU) 2017/1938 (Security of Supply), (EU) 2022/869 (TEN-E) and EU 2015/703 (Interoperability & Data Exchange Network Code) and relate to scenario development, investment and infrastructure assessment for the EU energy system.

One of ENTSOG's main deliverables are short and medium to long-term assessments such as the Union-wide Ten-Year Network Development Plan (TYNDP). In addition, the ENTSOG's maps show commitment to transparency and to providing stakeholders with easily accessible information.

All these deliverables aim at developing a vision of the integrated European energy market and in particular its infrastructure component. This vision is of particular importance in view of completing the pillars of the European Energy Policy to achieve the European energy and climate targets and European commitments to the EU Green Deal and the Paris Agreement.

The TYNDP Scenarios are jointly developed by ENTSOG and ENTSO-E, following the ACER framework guidelines, and in close collaboration with the Stakeholder Reference Group (SRG), aiming at an extensive engagement and cooperation with external stakeholders. This process is the entry point to the establishment of the TYNDP for natural gas and hydrogen. The TYNDP contains the Hydrogen Infrastructure Gaps Identification (IGI) report and Project Fiches that feed into the EC's and Regional

Groups' selection process of Projects of Common Interest (PCI) and Projects of Mutual Interest (PMI) of the hydrogen category.

The TYNDP furthermore contains a broader system assessment of the natural gas and the hydrogen system that contains a Supply Adequacy Outlook including a Biomethane Progress Report, as required by the Hydrogen and Decarbonised Gas Market Package. The overall TYNDP and associated processes take a total of four years and are repeated every second year.

ENTSOG will gradually involve ENNOH in all TYNDP activities that concern hydrogen, as required by the Hydrogen and Decarbonised Gas Market Regulation. Until 1 January 2027, ENTSOG is required to develop the 2026 Union-wide network development plan for hydrogen with two separate chapters: one for hydrogen and one for natural gas.

ENTSOG will not produce a new hydrogen CBA methodology in 2025 as future hydrogen CBA methodologies will be created by ENNOH. Until then, the hydrogen CBA methodology that ENTSOG submitted to the EC for approval in 2024 is used for PS-CBAs.

### 4.1 OBJECTIVES

- ▲ To assess the contribution of infrastructure solutions under different scenarios to the European Energy Policy, in particular sustainability, security of supply, competition and market integration, as well as to assess the European supply adequacy outlook through modelling of the integrated network and development of supply and demand scenarios.
- ▲ To support the investment process starting from gap identifications through to the coming on-stream of the respective infrastructure solutions.
- ▲ To support the Regional Groups, established by the EC, in the PCI and PMI selection process by providing the technical background and methodologies related to the cost-benefit analysis of projects.
- ▲ To provide support to institutions and stakeholders in the understanding of natural gas and hydrogen infrastructure.
- ▲ To develop ENTSOG's skills, methodologies and tools to sustain the achievement of the above objectives, and support ENNOH in these processes, where needed.

## 4.2 KEY DELIVERABLES AND ACTIVITIES

- ▲ Publish the TYNDP 2026 draft Scenarios report.
- ▲ Finalise TYNDP 2024 project-specific cost-benefit analyses (Project Fiches).
- ▲ Support the 7<sup>th</sup> PCI/PMI Selection Process (2<sup>nd</sup> process under the revised TEN-E Regulation).
- ▲ Support the System Capacity Map 2025 publication (jointly with GIE).
- ▲ Adapt ENTSO-E's and ENTSOG's consistent and Interlinked Model (ILM) for future TYNDPs.
- ▲ Publish the final Hydrogen Infrastructure Gap Identification report of TYNDP 2024.
- ▲ Draft and publish the final TYNDP 2024 documents.
- ▲ Publish documents related to TYNDP 2026 project collection (Guidelines for Project inclusion, Project promoter Handbook and support documents).
- ▲ Preparation of ENTSOG project portal for TYNDP 2026 Project collection process.
- ▲ Undertake the project data collection for TYNDP 2026.

### 4.2.1 SCENARIOS FOR TYNDP 2026

The TYNDP 2026 scenario development, started in May 2024, is planned to be finished at the end of 2025 with the publication of a draft TYNDP 2026 scenarios report. This planned timeline follows the ACER Framework Guidelines which recommend the finalisation of the scenarios development cycle at the end of the calendar year. Compared to the experience of previous TYNDP scenario cycles, the

TYNDP 2026 scenario process will be more streamlined, taking only one and a half years instead of two years as was the case in previous scenarios cycles. ACER is required to provide its opinion within a three-month period shortly after the publication of the draft TYNDP 2026 scenarios. The approval process by the EC will start thereafter.

### 4.2.2 TYNDP 2026

During 2025, ENTSOG will finalise the TYNDP 2024, the second hydrogen and natural gas TYNDP of its kind and an important platform for hydrogen projects and their assessment. ENTSOG aims to publish the draft TYNDP 2024 in the first half of 2025 for public consultation, including the System Assessment report, remaining annexes and maps. The IGI report and the Project Fiches will be published separately. If needed, ENTSOG will adapt IGI

report with consideration of the opinions received from ACER, Member States, and the EC on the draft version submitted in 2024. Following the public consultation described above and a potential adaptation of the IGI report, the draft TYNDP 2024 will be submitted to ACER for its opinion. After receiving ACER's opinion, ENTSOG will prepare the final TYNDP 2024 with publication in 2025.

### 4.2.3 HYDROGEN PROJECT ASSESSMENT FOR TYNDP 2026

ENTSOG will undertake PS-CBA assessments for hydrogen projects that intend to become PCI or PMI, as confirmed during the TYNDP 2024 project collection. The PS-CBA of hydrogen PCI or PMI candidates follows the methodology described in Annex D1 of the TYNDP 2024, established in 2024 in line with the hydrogen CBA methodology. Following the PS-CBA, ENTSOG will work on the TYNDP 2024 Project Fiches at the beginning of 2025. The Project Fiches will be published as part of the final TYNDP 2024.

Project Fiches will be produced at project-group level, summarising the benefits and costs of the

different PCI and/or PMI candidates and including the economic performance indicators at group-level. The Project Fiches will state the benefits of hydrogen infrastructure projects in terms of sustainability, market integration, competition and security of supply, as defined by the TEN-E Regulation. Project Fiches and PS-CBA assessments are an important input to the second PCI/PMI selection process under the revised TEN-E Regulation. ENTSOG will continue to support the EC in this process through the informal working group – the Cooperation Platform – a joint setup of EC, ACER, and ENTSOG, and through Regional Groups meetings.





#### 4.2.4 ENTSO-E/ENTSOG CONSISTENT AND INTERLINKED MODEL

Building on the outcomes of the study performed in 2022, ENTSOG and ENTSO-E have begun adapting their Interlinked Model (ILM).

Regulation 2022/869 requires ENTSO-E and ENTSOG to jointly submit to the EC and ACER by 25 October 2025, a consistent and progressively integrated model. This model includes electricity,

natural gas and hydrogen transmission infrastructure as well as storage, LNG and electrolyzers, covering the energy infrastructure priority corridors and the areas defined in line with the principles outlined in Annex V of the Regulation.

In 2025, ENTSOG will continue with testing the adapted version of the ILM principles.

#### 4.2.5 TYNDP 2026

In 2025, work will start on the TYNDP 2026, covering the 2026-2050 time horizon. The TYNDP 2026 serves as input to the third PCI/PMI selection process under the revised TEN-E Regulation.

ENTSOG will prepare the project data collection in Q4 of 2025. Starting with the Guidelines for Project Inclusion for TYNDP 2026, the step will define the project categories and subcategories for projects applying to TYNDP 2026 as well as the criteria to be fulfilled by projects and project promoters that intend to apply to TYNDP 2026. In addition, during

the second half of 2025, ENTSOG will adapt the project portal for TYNDP 2026 project collection and will support project promoters during this process.

To support project promoters during the TYNDP 2026 project collection process, ENTSOG will publish the documentation kit that includes a detailed project submission handbook as well as supporting documentation, e.g., glossary, submission forms and explanatory documents to support the validation processes of the project collection.

#### 4.2.6 MAPS 2025

Since its creation, ENTSOG has developed different maps, on a voluntary basis. These maps are welcomed by institutions and stakeholders as a highly useful overview and resource.

Every year ENTSOG publishes the System Capacity Map and starting from 2018 ENTSOG publishes the

TYNDP Map with all the projects included in TYNDP, on a bi-annual basis.

In 2025, ENTSOG will publish the System Capacity Map (published jointly with GIE) which can be obtained in hardcopy or downloaded from the ENTSOG website.

## 4.3 SUPPORTING ACTIVITIES

### 4.3.1 SUPPORT TO REGIONAL GROUPS ON THE PCI SELECTION PROCESS

To the extent envisioned by the EC, ENTSOG will take part to the Cooperation Platform between the EC, ACER and ENTSOG, and will participate in and support the work of the Regional Groups lead by the EC for the purpose of the selection of PCIs and PMIs.

ENTSOG will support promoters of projects applying for the PCI or PMI status, as for the previous PCI/PMI selection processes, including through the handling of project-specific Cost-Benefit Analyses (PS-CBA) as part of its TYNDP, in line with the Annex D1 of the TYNDP 2024. The publication of PS-CBA results will provide a transparent tool to all concerned stakeholders taking part in the PCI/PMI selection process.

### 4.3.2 GAS REGIONAL INVESTMENT PLANS (GRIPs)

TSOs regional cooperation to produce Gas Regional Investment Plans (GRIPs) will continue, and

ENTSOG will support TSOs in the development of the next edition of their GRIPs.



Picture courtesy of Enagás

## 4.4 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on Scenarios and Infrastructure related issues:

Scenarios and Infrastructure	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Adaptation of Interlinked Model												
Maps												
Support Activities												
Support to Regional Groups on the PCI selection process												
Support to TSOs with GRIPs												
TYNDP 2024												
Project Fiches*												
System Assessment: simulate & assess results**												
Draft System Assessment												
Draft TYNDP 2024 Public consultation												
Potential IGI report adaption												
Final TYNDP 2024 publication												
TYNDP 2026												
Draft Scenario development and publication												
TYNDP 2026 Guidelines for Project Inclusion												
TYNDP 2026 Project Collection preparation activities												
TYNDP 2026 Project Collection												

■ Activity periods   ■ Key deliverables available to external stakeholders   ■ Undetermined workload

\* Simultaneous occurrence of an activity period and delivery to external stakeholders

\*\* Simulations for scenarios other than National Trends+ 2030, National Trends+ 2040







## 5 SECURITY OF SUPPLY

After the gas crises of 2006 and 2009, the EU reinforced its security of gas supply, notably by adopting the first security of gas supply Regulation (EU) 994/2010 in 2010. On 28 October 2017 a revised Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) 994/2010 entered into force. This security of gas supply Regulation was amended by Regulation (EU) 2022/1032 with regard to gas storage. In a broader context, Council Regulation 2022/2576 (Enhancing Solidarity) and Council Regulation 2022/2578 (Market Correction Mechanism) were also created to enhance security of supply in Europe. With the entry into force of the Hydrogen and Decarbonised Gas Market Package, the Regulation (EU) 2017/1938 is also replaced and these changes apply from 1 January 2025.

The impact of the Russian invasion of Ukraine has shown that the existing security of supply rules were, however, not adequately adapted to sudden major geopolitical developments, where supply shortages and price peaks may not only result from the failure of infrastructure or extreme weather conditions, but also, as seen recently, from intentional major events and longer lasting or sudden supply disruptions. It was and is therefore necessary to address the increased risks resulting from the current geopolitical situation, including the diversification of the EU's energy supplies. ENTSG will continue to contribute to supporting the adoption of new rules and legislations for security of gas supply, and will continue to take part in the works

of the Gas Coordination Group (GCG) and ensure functionality of the Regional Coordination System for Gas (ReCo System for Gas).

Within the GCG crisis management formation ENTSG can facilitate the coordination and assist to develop channels for communication with all relevant actors and collect any information relevant to the security of gas supply at national, regional, and EU level.

Considering perspective developments of hydrogen production and transportation infrastructure, ENTSG will evaluate how security of supply risks can also be addressed on the basis of the further development of such infrastructure.

### 5.1 OBJECTIVES

- ▲ Facilitate regional cooperation for security of supply (SoS) and operational issues.
- ▲ Facilitate the functioning of the Regional Coordination System for Gas (ReCo System for Gas) as CNOT for emergency conditions and the incidents classification scale, as required by the Hydrogen and Decarbonised Gas Market Package. ReCo will continue its 24/7 exchange platform and coordinate work to help address security of supply challenges in Europe.
- ▲ Support the GCG and relevant stakeholders in the implementation of the SoS measures and the assessment of European SoS.
- ▲ Provide support to institutions and stakeholders in the provision of gas demand and supply outlooks, reviews, and monitoring activities.

## 5.2 KEY DELIVERABLES AND ACTIVITIES

- ▲ Union-wide simulation of supply and infrastructure disruption scenarios (ENTSOG SoS simulation report).
- ▲ Summer Supply Outlook 2025 with Winter 2025/26 Overview.
- ▲ Summer Supply Review 2024.
- ▲ Winter Supply Outlook 2025–2026 with Summer 2026 Overview.
- ▲ Winter Supply Review 2024–2025.
- ▲ Support functioning of the ReCo System for Gas.
- ▲ Support to the Gas Coordination Group.
- ▲ Support the EC in relation to SoS topics.
- ▲ Cooperation with non-EU TSOs and coordination of SoS activities.
- ▲ Run communication and tabletop exercises for better risk preparedness.
- ▲ Develop and adopt updates to the existing ReCo System for Gas and Incidents classification scale.
- ▲ Maintain and improve existing tools for gas flow patterns monitoring
- ▲ Facilitate the monitoring of the market correction mechanism, including monitoring the effects of the dynamic bidding limit on financial and energy markets and on security of supply in the case of the activation of the market correction mechanism.
- ▲ Monitor the filling of the European gas storage facilities according to the targets set for the yearly and intermediate filling level.
- ▲ ENTSOG will assist the process of TSOs maintenance plans coordination and potential impact on gas flow patterns.

### 5.2.1 OUTLOOKS AND REVIEWS

#### 5.2.1.1 Union-wide simulation of supply and infrastructure disruption scenarios

Regulation 2017/1938 provides that at least every four years, ENTSOG carries out a Union-wide simulation of supply and infrastructure disruption scenarios, which represents a Union-wide risk assessment, whose results should be taken into account by competent authorities for the update of their risk assessments, preventive action plans and emergency plans.

Based on the previous exercise, ENTSOG foresees the following tasks:

- ▲ Defining the scenarios in consultation with the GCG.
- ▲ Collecting the necessary data from the competent authorities.
- ▲ Performing the risk assessment, editing the report, gathering the results, and submitting the report to the relevant parties.
- ▲ The SoS simulation report aims to be published in Q3 2025 after approval by the GCG.

#### 5.2.1.2 Summer Supply Outlook 2025 with Winter 2025/26 Overview and Summer 2024 Review

ENTSOG plans to publish its Summer Supply Outlook 2025 in April 2025, including a Winter 2025/26 Overview, to inform stakeholders very early in the injection season. To develop this report, ENTSOG builds on the experience gathered since 2010 taking due account of ACER opinions and stakeholder feedback. The report benefits from the latest development of IT/R&D activities in the fields of modelling, supply and demand approaches.

The Summer Supply Outlook 2025 will assess the ability of the European gas infrastructures to provide flexibility while enabling shippers to fill storages in preparation of the winter, also in the context of the current geopolitical situation. This report assesses the level of service provided by infrastructures con-

sidering the latest trends in supply and demand. It thereby does not intend to forecast market behaviour. As for the Supply Outlooks since 2013, the EC and Member States, through the GCG, can request ENTSOG assessments for specific situations.

Along with its Summer Supply Outlook 2025, ENTSOG will also deliver on a voluntary basis the Summer 2024 Review: a description of the behaviour of the gas market during the summer months of 2024 on the basis of the observed daily gas flows and prices. It will provide the opportunity to investigate the short-term demand and supply trends and especially the dynamic of the gas demand for power generation. The Review will cover any relevant events taking place during the period.

### 5.2.1.3 Winter Supply Outlook 2025–2026 with Summer 2026 Overview and Winter 2024–2025 Review

ENTSOG plans to publish its Winter Supply Outlook 2025–2026 in October 2025, including Summer 2026 Overview, to inform stakeholders very early in the storage withdrawal season. To develop this report, ENTSOG will build on the experience gathered since 2010 taking due account of ACER opinions and stakeholder feedback. The report will benefit from the latest development of IT/R&D activities in the fields of modelling, supply and demand approaches.

The Winter Supply Outlook will assess both the possible evolution of gas storages inventory along different winter cases as well as the resilience of the European gas infrastructures under peak conditions, also in the context of the current geopolitical situation. This report assesses the level of service provided by infrastructures considering the latest trends in supply and demand. It thereby does not

intend to forecast market behaviour. As for all Supply Outlooks since 2013, the EC and Member States, through the GCG, may request ENTSOG assessments for specific situations.

Along with the Winter Supply Outlook 2025–2026, ENTSOG will also deliver on a voluntary basis the Winter 2024–2025 Review, a description of the behaviour of the gas market during the winter months of 2024–2025 on the basis of the observed daily gas flows and prices. It will provide the opportunity to investigate the short-term demand and supply trends and especially the dynamic of the gas demand for power generation. The Review will cover any relevant event taking place during the period.

This analysis will then be factored in ENTSOG R&D activities for further improvement of approaches for future deliverables.

## 5.2.2 REGIONAL COORDINATION (ReCo) SYSTEM FOR GAS

ENTSOG will ensure facilitation of the existing ReCo System for Gas as a CNOT for emergency conditions, including the incidents classification scale, and other supporting documentation for the ReCo Team Europe.

The Russian invasion of Ukraine in 2022 triggered a very close cooperation between TSOs, with communication on a daily basis and the identification of the need to closely monitor the gas flows patterns all over Europe. In this respect, ENTSOG developed in 2022 online dashboards which include gas flows (based on the ENTSOG Transparency Platform) and storage data (based on GIE Aggregate Storage Inventory platform). ENTSOG made these publicly available on its [website](#). In 2025, ENTSOG will further refine the data, design and usability aspects of these dashboards.

Considering the uncertainties regarding gas transit via Ukraine after 1 January 2025<sup>8</sup>, ENTSOG and TSOs will continue their close cooperation and exchange of dispatching data. This also includes conducting various security of supply stress test exercises to forecast, assess, and ensure the gas system's resilience and readiness to address potential supply disruptions. ENTSOG will continue to share aggregated information and assessments about gas flows in the EU, flow patterns, market behaviour and SoS updates with TSOs and relevant stakeholders such as EC and ACER.

ENTSOG, in coordination with the European ReCo Team Europe, will facilitate strengthening the cooperation in the energy sector in the case of sudden 'stress' events in addition to normal conditions and planned events, in particular with electricity TSOs (ENTSO-E), and other relevant associations.

ENTSOG will continue to assist the process of TSOs maintenance plans coordination. Additionally, TSOs will continue to closely cooperate in coordinating and planning the maintenance of networks to minimise any disruption of transmission services to network users and transmission system operators in general, and to ensure equal benefits with respect to security of supply, particularly in relation to transit.

ENTSOG will continue to utilise and work on its 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 during normal and emergency conditions. Better information for all TSOs will contribute to a more efficient and secure management of the gas transmission systems by allowing faster and more efficient preventive and remedial actions by TSOs to emergency situations.

ENTSOG, in coordination with the European ReCo Teams, will facilitate strengthening the cooperation in the energy sector in the case of sudden 'stress' events in addition to normal conditions and planned events, in particular with electricity TSOs (ENTSO-E), and other relevant associations.

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8 Further information will be available closer to end of 2024.

ENTSOG will continue facilitating the coordination of TSOs' maintenance plans. Additionally, TSOs will continue to closely cooperate in coordinating and planning the maintenance of networks to minimise any disruption of transmission services to network users and transmission system operators in general, and to ensure equal benefits with respect to security of supply particularly in relation to transit.

To enhance coordination between TSOs in normal and emergency conditions (following ACER's opinion No. 09/2019 on the adoption of ENTSOG's

common network operation tools<sup>9</sup>), ENTSOG and TSOs will continue their work on developing visualisation solutions for exchange of operational data between TSOs. Better information for all TSOs can contribute to a more efficient and secure management of the gas transmission systems by allowing faster and more efficient preventive and remedial actions by TSOs to emergency situations. In this regard, ENTSOG developed internal tools for TSOs for observing SoS situation closely and will further enhance these in 2024 with appropriate functionalities improving usability.

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## 5.3 SUPPORTING ACTIVITIES

### 5.3.1 SUPPORT TO GAS COORDINATION GROUP (GCG)

ENTSOG will continue to support the EC and the GCG in the implementation security of supply and solidarity measures and follow tasks given by the GCG. On request of the EC, security of supply updates will be provided in GCG meetings. Through the GCG and when preparing Supply Outlooks, ENTSOG will continue to encourage Member States to provide feedback on particular cases of interest.

Furthermore, ENTSOG will support the TSOs and Member States in their risk assessments based on the results of the Union-wide simulation or other ENTSOG calculations or analysis.

The team will assist the TSOs and competent authorities in the establishment of the preventive action and emergency plans, and possible new documentation regarding potential threats to business continuity. If required, ENTSOG will support the TSOs and competent authorities to agree on the technical arrangements for the application of the solidarity principles. As has been undertaken to date, ENTSOG will continue to support the EC and the TSOs in conducting ad hoc analysis investigating the different geopolitical challenges in the context of the security of gas supply.

### 5.3.2 TECHNICAL COOPERATION BETWEEN MEMBER STATES, ENERGY COMMUNITY AND THIRD COUNTRY TSOs

In 2025, ENTSOG will continue to support Energy Community Contracting Parties and third countries TSOs concerning security of supply. In particular, assistance will be provided to enhance technical cooperation with the third country TSOs supplying or transiting gas to the EU, to exchange technical and operational information in case of unforeseen stress events.

ENTSOG will continue to organise meetings in the framework of the External Contact Platform (ECP) in cooperation with the Energy Community Secretariat. This platform was developed by ENTSOG and the Energy Community Secretariat, to strengthen ENTSOG's cooperation with non-EU gas transmission companies, including those from the Energy Community countries. In 2025, there will be continued support for the TSOs of Member States, Energy Community and third countries in the imple-

mentation of the EU NC rules by expanding regional cooperation, via workshops or meetings organised by ENTSOG.

If required, ENTSOG intends to organise a potential workshop involving EU TSOs and relevant adjacent non-EU TSOs (e. g., TSOs from North African countries, Turkey and parties acting as TSOs) supplying or transiting gas to EU, to discuss future steps for strengthening technical cooperation.

ENTSOG will also continue to facilitate the meetings and the activities of the EU-UK Gas TSOs Task Force, which was created in 2021 as the interface between ENTSOG and the UK TSOs. This is upon request of the EC and the UK Government in accordance with the Trade and Cooperation agreement concluded by the EU and the UK following the Brexit. The main goal of this Task Force is to ensure further cooperation between the EU and the UK TSOs.

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<sup>9</sup> See opinion no 09/2019 of the Agency for the Cooperation of Energy Regulators (ACER) [here](#).



## 5.4 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on Security of Supply related issues:

Security of Supply	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
<b>Summer Supply Outlook 2025 &amp; Review</b>												
Summer Supply Outlook 2025												
Summer Review 2024												
<b>Winter Supply Outlook 2025/26 &amp; Review</b>												
Winter Supply Outlook 2025/26												
Winter Review 2024/25												
<b>Union-wide security of supply simulation Report</b>												
SoS Report 2025												
<b>Support to GCG</b>												
Support to the EC and GCG concerning the SoS Regulation, GHP regulation L-gas Risk Group, regional EP, PAP, solidarity mechanisms, market correction mechanism, storage facilities filling targets												
<b>Facilitation of ReCo System for Gas</b>												
Review and update of the ReCo System for Gas												
Cooperation with ENTSO-E and other associations in Security of Supply (energy)												
Development of visualisation solutions and tools for exchange of operational data between TSOs												

■ Activity periods    ■ Key deliverables available to external stakeholders



## 6 ENERGY TRANSITION

The EC developed in 2021 and 2022 new energy and climate related legislation in the context of the European Green Deal, the 'Fit for 55' legislative package, and the Hydrogen and Decarbonised Gas Market package, which also includes an update to the current gas market design and was complemented by the REPowerEU Plan. In 2024 most of the legislative files were finalised (e. g., the revision of gas market rules, revision of Renewable Energy Directive, revision of Energy Efficiency Directive, and revision of the EU Emissions Trading System) and it is anticipated that these will progress to be subsequently implemented in 2025 and beyond.

These files provide for new elements as well as adjustments to the current gas regulatory framework, the basis of which ENTSOG focuses its implementation efforts. Therefore, the implementation of the Hydrogen and Decarbonised Gas Market Package will be of particular relevance, impacting ENTSOG and TSOs activities for the coming years. To help monitor the expected progress and speed of implementation of such a complex legal framework, ENTSOG will prepare an 'Implementation Observatory', to enable presentation of the relevant status updates in a transparent, visual and user-friendly format (more details provided in R&D section).

### Energy System Integration

ENTSOG continuously underlines the synergies of electricity and gas systems integration and the importance of planning for hydrogen production centres, storage facilities and transmission capacities. It highlights the value of flexibility offered by molecules (hydrogen and biomethane) as energy system integration technologies, helping to address the significant intermittency patterns and multiple challenges of decarbonisation on both the electrons and molecules side.

Working alongside the hydrogen value chains, TSOs and DSOs, ENTSOG twice a year updates the joint Hydrogen Infrastructure Map to provide an up-to-date picture on the planned hydrogen infrastructure projects as well monitoring the progress of implementation of the six EU-wide Hydrogen Corridors as referred to in the RePower EU Plan

ENTSOG's engagement in the energy transition related activities will focus on three core topics:

- ▲ Energy system integration – via cooperation with gas, hydrogen and electricity value chains
- ▲ Decarbonisation of gas sector, with uptake of renewable and low-carbon gases – via coordination with gas, hydrogen and biomethane stakeholders
- ▲ Industrial Carbon Management policies with CCUS technologies – via the development of relevant data, positions and expertise for any developments in the field of CO<sub>2</sub> transportation and handling.

(with Germany as indicated demand centre). ENTSOG integrates the information based on the TYNDP 2024 project collection, Projects of Common Interest / Projects of Mutual Interest (PCI/PMI) list, as well as other relevant European Clean Hydrogen Alliance project collections.

In 2025, ENTSOG will also further engage as a facilitator of the European Clean Hydrogen Alliance's Roundtable on Transmission and Distribution. In addition to the above-mentioned activities focusing on implementation of infrastructure for hydrogen transport and distribution projects, the roundtable aims to promote the knowledge on dedicated financing available under various EU and national schemes to hydrogen infrastructure promoters.

## Decarbonisation of the gas sector

Based on the newly adopted legal framework, to facilitate appropriate network planning and assessment for the grid users under the phase of repurposing of the gas assets and ensure continued security of supply, ENTSOG will be engaged in fulfilling the new monitoring tasks (some of which are described in other sections of this AWP), such as:

- ▲ Starting in 2025, ENTSOG to publish first biomethane progress monitoring report.
- ▲ Progress of discounts policies applied by the Member States and NRAs to facilitate the offtake of those gases in the system.
- ▲ Progress of certification works at the EU and at the national level, impacting gas quality developments.
- ▲ Gas quality monitoring across EU Interconnection points.

## Industrial Carbon Management policies

ENTSOG was in 2024 invited by the EC to take part to the European CCUS Forum (now called the ICM Forum), specifically in the group working on CO<sub>2</sub> Infrastructures. In 2025, ENTSOG expects that the members' expertise and experience on technical aspects of CO<sub>2</sub> handling in gaseous and liquid form, will be of benefit for knowledge to develop the standardisation workstreams at the EU and international level. In 2025, ENTSOG will continue its active dialogue between the EU and Norway and is contributing to the project promoters learning exchanges.

Following the EU's Industrial Carbon Management strategy development and inclusion of CO<sub>2</sub> PCIs

Furthermore, ENTSOG will be supporting the relevant cooperation with ENNOH, as provided by the Hydrogen and Decarbonised Gas Market Package. Most importantly, ENTSOG will facilitate the cooperation on the network planning under the TYNDP 2026 cycle (as outlined in Scenarios and Infrastructure section of this AWP) and also on the relevant market rules, as requested under the EC's priority list for gas, and – where requested – in collaboration with hydrogen operators.

Finally, for effective decarbonisation of gas grids debate, ENTSOG will continue engaging with relevant stakeholders from the hydrogen, electricity, and gas value chains. Engagement with storage and LNG system and ports operators, DSOs and hard-to-abate off-takers of hydrogen are of particular relevance.

under the TEN-E Regulation, in 2025 ENTSOG will be contributing to the relevant discussion on the future of gas grids in context of CO<sub>2</sub> transport systems. In this regard specifically, together with members of ENTSOG's Future of Gas Grids Panel, ENTSOG discusses the regulatory principles and concepts relevant for the upcoming legislation proposals.

Furthermore, and to better monitor ongoing developments technical and regulatory advancements, ENTSOG will prepare a CCUS project progress monitoring initiative to ensure a streamlined information flow and information exchange forum for TSO Members (further details in the R&D section).



## 6.1 OBJECTIVES

- ▲ Communicate ENTSOG activities for the implementation of the Hydrogen and Decarbonised Gas Market Package, Coordinate ENTSOG actions and communication related to the Package implementation (e.g., ENTSOG Implementation Observatory – see further detail in R&D section).
- ▲ Ensure timely information flow for ENTSOG's activities related to the security of supply for gases under the gas grids repurposing phase.
- ▲ Propose practical solutions for the implementation of the integrated planning for gas and hydrogen, security of supply and market development via Madrid, Copenhagen, Florence and other communication channels.
- ▲ Facilitate effectively and transparently the European Clean Hydrogen Alliance Roundtable on Hydrogen Transmission and Distribution based on the rules agreed with the EC (DG GROW).
- ▲ Organise the efficient information flow and reporting related to CCUS developments, as well as any regulation for CCUS activities, including the activities for the EU ICM Forum and development of relevant positions.
- ▲ Coordinate and exchange with stakeholders along the whole value chain on best practices related to the transitioning of gas grids (via the ENTSOG Advisory Panel for Future Gas Grids).
- ▲ Monitor key energy/climate policy and regulatory developments put forward by EU institutions.
- ▲ Communicate ENTSOG's positions regarding the legislative and policy proposals developed for the EU gas sector and its integration with other energy sectors.
- ▲ Engage in dialogue with EC, ACER, industry associations, energy sector associations and other key EU stakeholders.
- ▲ Develop communications to assist stakeholders understand how gas grids can contribute to decarbonisation and energy transition in different sectors of the EU economy.
- ▲ Support in developing positions on measures that are needed at a national level to facilitate deployment of new TSO products and services to facilitate decarbonisation and the energy transition (e.g., linked to support for certification, inclusion of all gases, gas quality and planning at TSO and DSO levels).

## 6.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Preparation of the materials on common understanding of the Package among the TSOs. ENTSOG's support to Members in implementation of regulatory framework in context of European Green Deal and 'Fit for 55' legislative files: the Hydrogen and Decarbonised Gas Market Package, including Revised Gas Regulation and Directive, and on the Methane Emission Reduction Regulation, RED III, REMIT and their tertiary legislation (Network Codes, Delegated Acts, Implementing Acts).
- ▲ High-level position paper(s) and proposals for the related regulatory developments based on the steer and priorities identified by the ENTSOG Board for CCUS, for integration of gas and hydrogen planning, for security of supplies and for market developments.
- ▲ Proposals for external and internal communication on ENTSOG's positions, monitoring works and progress reports: ENTSOG's responses to relevant public consultations and stakeholders' engagement processes – contributing with facts, figures, and proposals for technical standards and solutions for market, grids and operations integrating gas, hydrogen and electricity value chains.
- ▲ Promotion of the European Clean Hydrogen Alliance Transmission and Distribution Round Table outputs, including the Implementation of Hydrogen Corridors Learnbook and Financing of Hydrogen Projects Learnbook.
- ▲ ENTSOG's inputs and positions for the Copenhagen, Florence, Madrid and CCUS Fora, as well as any other relevant reports and studies concerning strategic topics in relation to market design, grid planning and grid operations.
- ▲ Engagement with stakeholders via the Advisory Panel for Future of Gas Grids.
- ▲ Support for European Clean Hydrogen Alliance work, specifically on Clean Hydrogen Transmission and Distribution Roundtable.
- ▲ Participation in Prime Movers on Guarantees of Origin and Certification.
- ▲ Participation in Prime Movers on Gas Quality and Hydrogen Handling.
- ▲ Participation in Clean Hydrogen Partnership
- ▲ Participation in Investors Dialogue on Energy  
ENTSOG will be monitoring and proposing the relevant actions related to the Hydrogen and Decarbonised Gas Market Package implementation and achieving common understanding of Directive and Regulation and of the revised TEN-E Regulation.
- ▲ As required by the Hydrogen and Decarbonised Gas Market Package, adopt an annual work programme, including a list and description of the network codes to be prepared, a plan on coordination of the operation of the network, and list of R&D activities.
- ▲ As required by the Hydrogen and Decarbonised Gas Market Package, adopt an annual report, including results of the analysis the implementation of the Network Codes and Guidelines adopted by EC.

## 6.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities:

Activities	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Monitoring of key EU energy & climate policy and regulatory files												
Implementation of legislations, including their associated tertiary Delegated and Implemented Acts												
Development of high-level position paper(s) and proposals for the related regulatory developments on CCUS												
Provide feedback to relevant EU public consultations												
Develop ENTSOG's contributions to identified strategic projects/reports/studies												
Develop ENTSOG's inputs and positions for the 2025 Copenhagen, Florence, Madrid, ICM (CCUS) Fora												
Communicate ENTSOG's views on strategic projects to stakeholders (including EC)												
Promotion of the European Clean Hydrogen Alliance Transmission and Distribution Round Table outputs												
Exchange and coordinate with stakeholders on key technical, regulatory and market relevant topics via Advisory Panel for Future Gas Grids												
Participation in Prime Movers on Guarantees of Origin and Certification												
Participation in Clean Hydrogen Partnership												
Participation in Investors Dialogue on Energy												
Provide support to ENTSOG's Members regarding the development of any new TSO products, technologies and services which can contribute towards meeting decarbonisation and EU climate neutrality targets												

■ Activity periods





Picture courtesy of TAP



# 7 RESEARCH & DEVELOPMENT

## 7.1 OBJECTIVES

The Hydrogen and Decarbonised Gas Market Regulation requires that the ENTSOG Annual Work Programme includes a list and description of its research and development activities. ENTSOG is committed to working towards and promotion of innovation and improvement of processes of its

Members' activities and strives to meet challenges on an ongoing basis. This is evidenced in this section, in which the tools, methodologies, stakeholder engagement processes and IT solutions are outlined to address potential difficulties and to improve our way of working.

## 7.2 KEY DELIVERABLES AND ACTIVITIES

### 7.2.1 HYDROGEN AND DECARBONISED GAS MARKET PACKAGE IMPLEMENTATION OBSERVATORY

This initiative will provide transparency and timely information on the implementation of the relevant provisions for ENTSOG of the Hydrogen and Decarbonised Gas Market Package. The Hydrogen and Decarbonised Gas Market Package Implementation Observatory will provide online information allowing any interested party an overview of the actual imple-

mentation of relevant package provisions. Elements covered will include regulatory tasks, e. g., the gas quality monitoring report, benchmarking studies, the reports on the renewable and low-carbon gas injected into the natural gas network, the biomethane progress monitoring report, among others.

### 7.2.2 CCUS PROJECT PROGRESS MONITORING

In 2025, ENTSOG will continue to actively monitor and engage with its Members and external stakeholders on monitoring developments related to CCUS across the value chain. The CCUS progress project monitoring activity aims to streamline the flow of information sharing, and assist any interested parties in the tracking of updates related to the upcoming regulation for CO<sub>2</sub> transport infrastructure, repurposing of gas grids for a

CO<sub>2</sub> transportation system, ENTSOG's ongoing dialogues between the EU and Norway, and relevant projects and technical progress across the EU, further assisting in the coordination of knowledge sharing and best practices. It is intended that these projects would then be showcased on ENTSOG's Innovative Projects Platform, on the ENTSOG website.

### 7.2.3 EXPLORING A 'TRI-INTERLINKED MODEL'

In 2025, ENTSOG will continue to develop advanced sector coupling models. The development of the ILM is a joint project conducted with ENTSO-E. In 2024, the ILM task force has focused on the development of a hydrogen – electricity interlinked model, which can be used to perform cost-benefit analyses on projects submitted to both ENTSO-E and ENTSOG.

In 2025, ENTSOG intends to extend this model to include the natural gas system. This updated

model could then in principle be used for a range of purposes including cost-benefit analyses, system needs analyses, scenario development, and impact assessments of repurposing of natural gas infrastructure to dedicated hydrogen infrastructure.

Additional possible areas in the upcoming development of the ILM are offshore wind hubs, hybrid heating solutions, and the production of synthetic fuels.

## 7.2.4 HYDROGEN AND GAS QUALITY

ENTSOG will continue its activities for analysing the feasibility of the integration of renewable and low-carbon gases into the gas grid and pipelines repurposed for hydrogen use. Furthermore, to support the cost-effective integration of renewable and low carbon gases such as synthetic methane, biomethane, and hydrogen in the network in accordance with consumers' needs and gas quality requirements, ENTSOG is committed to further 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.

For repurposing pipelines for hydrogen use, ENTSOG is involved in the PilgrHYm project, a pre-normative research project which has received co-funding from the EC and the Clean Hydrogen

Partnership. The project brings together more than twenty actors from the gas value chain and aims to develop protocols and guidelines for repurposing existing gas pipelines for hydrogen use. ENTSOG is member of the Advisory Board of the PilgrHYm project and will contribute by providing the information necessary to the project and monitoring its advancement.

As part of the Hydrogen and Decarbonised Gas Package implementation, ENTSOG will continue working closely with its members and stakeholders in assessing the potential achievable hydrogen purity levels for repurposed gas grids, the potential implementation of hydrogen blends and a minimum acceptable oxygen level at IPs for the unhindered cross-border flow hydrogen blends and of biomethane, and the Wobbe Index classification system for exit points (based on the CEN SFGas GQS proposal<sup>10</sup>).

## 7.2.5 CYBERSECURITY

In 2025, ENTSOG IT will continue its activities to protect its information assets from potential cybersecurity attacks while also ensuring organisational operational efficiency. This ongoing programme includes development and implementation of policies, controls and governance.

Additionally, ENTSOG together with GIE as a partner, will continue governing the work of the Joint Cyber Security Task Force which coordinates the dialogue of the infrastructure operators for gas (e. g. TSOs, SSOs, LSOs) with relevant parties in the field of cybersecurity as well as closely observe the further steps regarding the implementation of the NIS 2.0 Directive and other relevant pieces of cybersecurity legislation.

The annual ENTSOG data exchange workshop will be supplemented by a dedicated, full-day cybersecurity session involving ENISA, EC eDelivery,

EDA, TSOs, Service providers, EASEE-gas, GIE and critical infrastructure organisations.

ENTSOG will continue to participate in the ENISA cybersecurity briefings which provides ENTSOG with bi-monthly cybersecurity threat analysis. As part of an ongoing collaboration with ENISA, ENTSOG will support the goal to raise awareness on cybersecurity issues throughout the gas sector. This will be achieved by organising various cybersecurity awareness events (tabletop exercises, courses, information sessions) which are delivered by ENISA staff and promoted to ENTSOG's gas community.

ENTSOG will continue to use the ReCo system to inform TSOs on cybersecurity incidents affecting dispatching and operational procedures and review malware information sharing platforms when required.

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10 CEN Sector Forum Gas WG Gas Quality Study 'Prenormative Studies of H-Gas quality parameters' (short CEN SFGas GQS), in support of EC Mandate M/400 on gas quality harmonisation, came up with a proposal for the Wobbe Index in the standard for H-gas (EN 16726): A recommendation for a single EU WI entry range and the requirement of a WI classification system at exit to the end-use applications using H-gas.

7.2.6 ENTSG PARTICIPATION IN THE SMART ENERGY EXPERT GROUP (SEEG)

The EC has set up the ‘Smart Energy Expert Group’ (previously the Smart Grids Task Force) led by DGs CNECT (DG Communications Networks, Content and Technology) and ENER (DG Energy). Among others, the Group’s tasks are to assist the EC in relation to the implementation of existing Union legislation, programs, policies, etc.

Three Working Groups will be created under the SEEG:

- ▲ Data for Energy (D4E): build the European framework for sharing energy-related data.
- ▲ Consumer Empowerment and Protection: bolster consumer engagement and empowerment.
- ▲ Cybersecurity: provide recommendations and guidance to the Commission on cybersecurity for energy systems.

ENTSG was appointed as members of the SEEG and has received a direct invite from the EC to participate in the work and provide its expertise. This work is expected to proceed in 2025.

7.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities on Research and Development-related issues:

Research and Development	2025											
	J	F	M	A	M	J	J	A	S	O	N	D
Hydrogen and Decarbonised Gas Market Package Implementation Observatory												
CCUS Project Progress Monitoring												
System Development ‘Tri-Interlinked Model’												
Hydrogen and Gas Quality assessment												
Cybersecurity assessment												
ENTSG participation in the Smart Energy Expert Group (SEEG)												

Activity periods







# 8 ENTSG SUPPORTING ACTIVITIES

## 8.1 OBJECTIVES

With the support of its Members and the guidance of its steering bodies, the Management Support team coordinates and supports the work of ENTSG. It prepares, arranges, and coordinates the various General Assembly and Management Board Meetings and maintains an overview on all organisational activities. It is structured in various management support functions that work with the Brussels team but also directly with the Members. With a growing number of cross-organisational projects and interlinked activities, the Management Support team supports ENTSG planning, management, and execution.

The Management Support team also prepares the strategic processes aimed at defining the ENTSG profile and taking care of the consistent application of those strategic orientation lines in organisation practice. The team aims to establish and maintain

the most efficient structure to support all organisational Business Areas (i. e., Market, System Development, System Operation and Strategy, Policy and Communications) and the related working groups (WGs) and Task Forces (TFs). That includes the planning and development of financial and human resources but also the communication flow within the association and to its stakeholders.

ENTSG will continue to internally evaluate the risks that present challenges to meet its objectives, activities, and deliverables, addressing regulatory, legal, finance and human resource aspects. Risk assessment and plans for proper mitigation measures will be supervised by ENTSG's steering bodies.

A high-level overview of the main risks and associated mitigation measures are outlined in the table included in Section 8.2.4.

## 8.2 KEY DELIVERABLES AND ACTIVITIES

### 8.2.1 LEGAL AND CORPORATE AFFAIRS

The ENTSG Legal Team ensures compliance of ENTSG with the applicable law and the regulatory framework while carrying out its missions. It undertakes the day-to-day activities of the Association from the legal perspective as well as supporting activities undertaken by the different Business Areas and their respective WGs.

In 2025, this support will continue with respect to the implementation of the existing network codes and in some cases effect monitoring. The Legal Team will in particular support WGs and TFs established or to be established with the aim to implement/interpret the new Hydrogen and Decarbonised Gas Market Package of legislation. The Legal Team will also support the System Development team by providing legal assistance on the development of the forthcoming TYNDP.

The Management support team will continue to facilitate meetings of the External Contact Platform (ECP), a platform developed by ENTSG and the Energy Community Secretariat, to strengthen

ENTSG's cooperation with non-EU gas transmission companies, including those from the Energy Community countries.

The Management support team will also continue to facilitate the meetings and the activities of the EU-UK Gas TSOs Task Force, which was created in 2021 as the interface between ENTSG and the UK TSOs. This is upon request of the EC and the UK Government in accordance with the Trade and Cooperation agreement concluded by the EU and the UK following the Brexit. The main goal of this Task Force is to ensure further cooperation between the EU and the UK TSOs.

To address the legal issues arising in the meetings of the ENTSG Working Groups, the Legal Team coordinates the activities of the Legal Advisory Group (LAG), which convenes for monthly meetings. The LAG is the ENTSG legal working group composed of ENTSG members' representatives from legal staff of the TSOs.

On a day-to-day basis, the Legal Team and Management support provides legal assistance and advice to the management, the Board and the General Assembly in terms of governance. The Legal Team is also ensuring the compliance of the Association with national law applicable to companies and associations.

The Legal Team and Management support may be required to assist the association in adjusting ENTSOG statutes and ways of working to meet the needs of the Hydrogen and Decarbonised Gas Market Package, as needed.

## 8.2.2 FINANCE AND HR

### 8.2.2.1 Finance

ENTSOG is an international non-profit association (AISBL) established according to Belgian law. The highest decisive body of ENTSOG is the General Assembly which meets four times a year. ENTSOG is financed by its Members. The member TSOs contribute to the budget according to the number of kilometres of gas grid, population of the country and in some cases to special EU Grid connection significance.

With regards to financial reporting, ENTSOG created and implemented clear and efficient accounting procedures and controls.

In 2010, a Financial Committee has been established and the main tasks of the Committee are as follows:

- checking the compliance with local laws and obligation
- advising on the association's Budget
- validating the closure of the accounting year and balance sheet
- reporting on a quarterly basis to the Board and General Assembly on account situation

Financial Committee meetings are held five times per year.

### 8.2.2.2 Human Resources

To fulfil all tasks and deliverables a well-prepared recruitment plan needs to be in place so that ENTSOG will have the relevant resources and competences to perform the requested activities.

By the end of 2024, the ENTSOG Team in Brussels consists of forty-three persons and a resource plan is in place to prepare for replacement of seconded persons whose contracts expire. ENTSOG is comprised of:

- Seconded staff from its members – typically seconded for 3-5 years,
- Direct employees, and
- External consultants

The ENTSOG staff consists currently of 19 different nationalities and representing 11 companies, which provides a unique and challenging international working environment.

Key responsibilities of the Adviser role include leadership and support for internal work groups, external workshops and meetings, as well as participation in processes led by the EC, ACER and other European authorities.

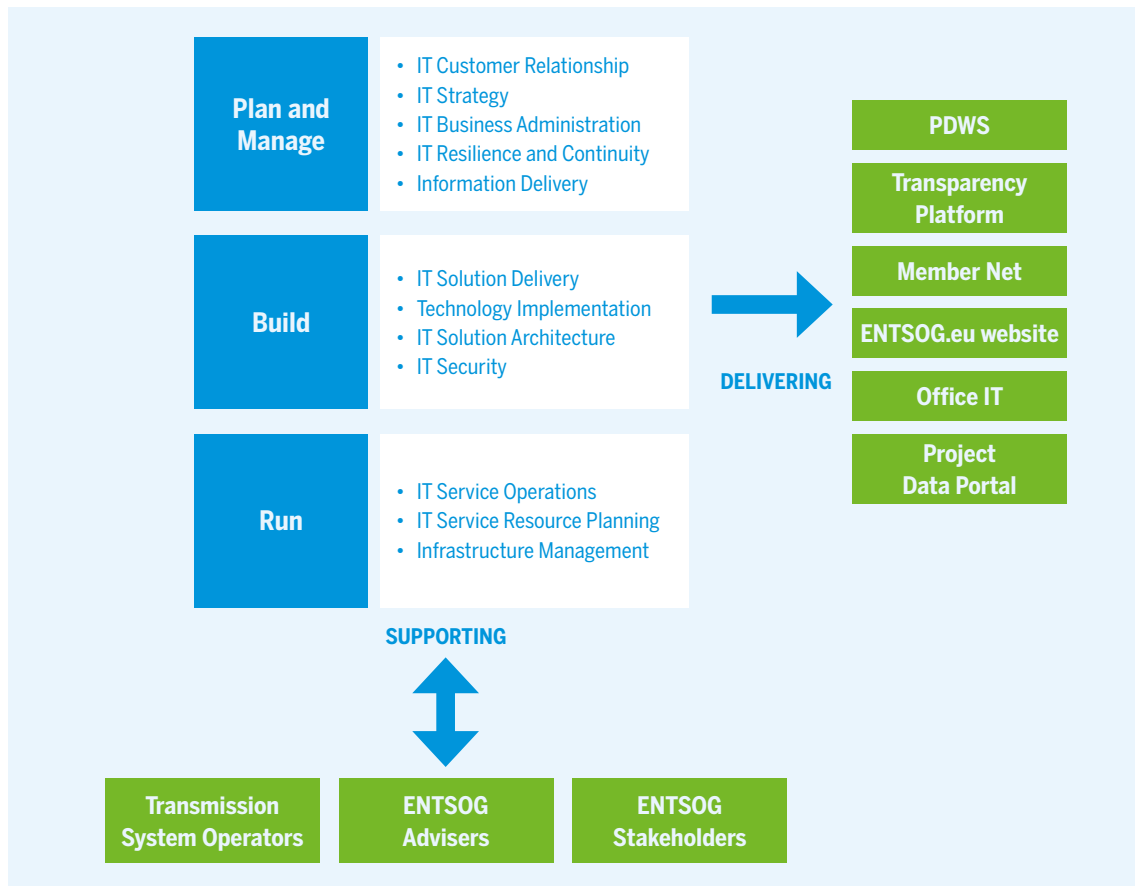
ENTSOG has a strong focus on the resource allocation as well as the relevant hand-over processes to ensure the performance of the organisation vis-à-vis the required deliverables. Systematic planning of resources replacement and knowledge transfer allows for the mitigation of risks which may affect the business continuity of the association.

ENTSOG Staff	31.12.2023	31.12.2024
General Director	1	1
Directors	4	4
Manager / Advisers	34	35
Senior Assistants	2	2
Assistants	1	1
<b>Total</b>	<b>42</b>	<b>43</b>

### 8.2.3 INFORMATION TECHNOLOGY (IT)

The ENTSOG IT team provides IT support and services to the ENTSOG team (i. e., management and the Business Areas), its members and other

ENTSOG stakeholders (e. g., ACER, EC). The figure below outlines the key delivery and support activities which are the responsibility of the IT team.



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; they also provide IT support to ENTSOG stakeholders in the use of ENTSOG's data and systems.

The ENTSOG IT systems include:

- ▲ Professional Data Warehouse (PDWS) (including a Data Portal for reporting)
- ▲ Portal for Projects Data Collection used for TYNDP and PCI
- ▲ **Transparency Platform (TP)**
- ▲ Azure Data Factory used for:
  - Modelling Database for SysDev team
  - Reporting purposes for SysOp team
- ▲ Content Management Solution (Membernet)
- ▲ **ENTSOG Website**
- ▲ ESRI ArcGIS solution used for the Hydrogen Infrastructure Map

- ▲ ReCo 2.0.
- ▲ PLEXOS tool for simulations.
- ▲ ETM tool (Energy Transition Model) used in collaboration with ENTSO-E.
- ▲ Office IT – Network, Laptops, Mobile phones, Conferencing Audio-Video, etc.
- ▲ Azure infrastructure for the multiple internal tools and projects.

Following a review of its IT systems in 2019, ENTSOG will continue the replacement/upgrade of ENTSOG's IT assets in the coming years to deliver secure, integrated, and cost-effective IT solutions for ENTSOG. The targeted services for these upgrades in 2021 and 2022 were the TP, PDWS and ArcGIS systems. In 2023 and 2024 ENTSOG added to its technology stack tools, such as PLEXOS and Energy Transition Model (ETM).

For 2025 we will focus on tools like Azure Data Factory and Power BI.

- ▲ The TP upgrade analysis commenced in 2019 with main delivery in early 2022 when all the PDWS and TP infrastructure was migrated to Azure cloud. The fine-tuning continued in 2023–2024 and new improvements will be added in 2025.
- ▲ One of the purposes of PDWS is the reporting feature. This was improved in 2020 by migrating some or building new reports in Power BI (a business analytics service that delivers insights by transforming data into visuals which can be shared and collaborate on), and the task will continue in 2025.
- ▲ ESRI ArcGIS software implementation, which had commenced in 2019 as part of IT R&D strategy and BI vision, was used for the new hydrogen infrastructure map (initially mapped using with QGIS) in 2024. We will continue to use it in 2025 for any new GIS mapping needs.
- ▲ Besides the PDWS/TP infrastructure migration to cloud, another project delivered in 2022–2023 was the SharePoint upgrade of the Data Portal. In 2024 ENTSG fine-tuned the release and new functionalities will be brought in during 2025.

- ▲ In 2022–2023 the development of the Modelling Database commenced by using Azure Data Factory. This was continued in 2023–2024 by using PLEXOS for the simulations. ADF will also be used by the System Operation team for reporting and dashboard purposes starting in 2024 and continue in 2025.
- ▲ For the office IT, the main project in 2022–2023 was the Active Directory (AD) migration to Azure cloud and fine-tuning of policies in InTune. Starting 2024 ENTSG has a complete cloud-based infrastructure, including both servers and devices. For 2025 we will continue to secure our cloud infrastructure and optimise our resources.
- ▲ The development of ReCo 2.0 commenced in late 2021 and continued throughout 2022–2024 for its different phases. In 2025 ENTSG will evaluate the solution built so far with some new functionality.
- ▲ A joint project with ENTSG-E requires the use of the solution called Energy Transition Model (ETM).

## 8.2.4 RISK AND MITIGATION

ENTSG strives to meet challenges and potential risks on an ongoing basis. The core ENTSG organisational structure, with the flow of information between the ENTSG Members, Board and General Assembly ensures that the correct mechanisms are in place to anticipate in advance any potential risks. ENTSG Working Group, Task Force and Standing group meetings occur at minimum monthly, and ad hoc as needed. Additionally, ENTSG is in direct and frequent communication with ACER and European Commission, as ENTSG tasks are now embedded in the Hydrogen and Decarbonised Gas Market Package.

ENTSG and ACER's Network Code Functionality Platform allows for the identification by market participants of the effectiveness of the implementation of the Network Codes, thereby allowing full transparency, monitoring, and a formal process for identification and reaction to any relevant issues.

As outlined in Section 7 (Research and Development) of this report, and included in each edition of the AWP, the tools, methodologies, stakeholder engagement processes and IT solutions to address potential difficulties and risks to performance and to improve our way of working.

Additionally, ENTSG will continue to internally evaluate the risks that present challenges to meet its objectives, activities and deliverables, addressing regulatory, legal, finance and human resource aspects. Risk assessment and plans for proper mitigation measures will continue to be supervised by ENTSG's steering bodies. ENTSG aims to minimise unnecessary costs to the Association that would be incurred through additional risk assessment undertaken by external consultants. With the formal establishment of ENNOH, ENTSG will support, as needed, the work undertaken by the hydrogen transmission network operators and the ENNOH team.



The table below outlines the key mitigation measures implemented by ENTSOG to address the potential risks identified.

Category	Risk	Mitigation
<b>Regulatory/legal</b>	Possible inadequacy between the regulatory framework in place and the ENTSOG's objectives, tasks and deliverable	<ul style="list-style-type: none"> <li>▲ ENTSOG, as AISBL, works under Belgian law. The legal team of ENTSOG is composed of a Belgian lawyer, and a strong network has been built with Belgian Notary and other Belgian Officials/authorities.</li> <li>▲ Adherence to ENTSOG's Article of Association and related Rules of Procedures, following opinions issued by ACER and the Commission.</li> <li>▲ Oversight by ACER of ENTSOG's regulatory tasks, as outlined by the Hydrogen and Decarbonised Gas Market Package.</li> <li>▲ Constant legal monitoring to review, application and implementation of any additional/new pieces of legislation to which ENTSOG may be subject, e. g., the Hydrogen and Decarbonised Gas Market Package.</li> </ul>
<b>Finance/ budgeting</b>	Underestimated budget in place to achieve ENTSOG's objectives, tasks, deliverables	<ul style="list-style-type: none"> <li>▲ Finances evaluated frequently by ENTSOG Finance committee, comprising ENTSOG members. The Finance committee meets five times per year.</li> <li>▲ The status of finance evaluation reported, on quarterly basis, to Members to ensure a constant monitoring</li> <li>▲ External publication of a detailed Financial Statement in ENTSOG Annual Report, which includes comparison of the assets, liabilities and equities, and income sources with the previous year. Any potential negative risk is being evaluated and addressed based on the trends presented.</li> <li>▲ Yearly submission of Financial Statements to National Belgium Bank in accordance with Belgian accounting rules.</li> </ul>
<b>Resource allocation</b>	Inadequate resource allocation to achieve ENTSOG's objectives, tasks, deliverables	<ul style="list-style-type: none"> <li>▲ Secondment principal applied – personnel coming from TSOs.</li> <li>▲ Systematic planning in advance of personnel replacement.</li> <li>▲ Internal processes to ensure knowledge transfer within the Business Areas.</li> <li>▲ Annual outlook and analysis of recruitment needs prepared and addressed to Members on bi-annual basis.</li> </ul>
<b>IT/cybersecurity</b>	Inadequate IT resources/ systems in place to achieve ENTSOG's objectives, tasks, deliverables	<ul style="list-style-type: none"> <li>▲ Frequent planning for replacement/upgrade of ENTSOG IT resources and infrastructure to deliver secure, integrated, and cost-effective IT solutions</li> <li>▲ Anti-malware and cyberattack protection training campaigns rolled out to ENTSOG Brussels team on a regular basis</li> <li>▲ Update of hardware and software to ensure IT security</li> <li>▲ Audit of infrastructure and policies put in place</li> <li>▲ Constant monitoring of traffic activities for email and SharePoint</li> <li>▲ Knowledge transfer between personnel for back up in case of absences</li> </ul>



# 9 ANNEX: OVERVIEW OF ENTSOG'S REGULATORY FRAMEWORK FOR ITS TASKS

The tasks entrusted to ENTSOG derive mainly from the following pieces legislation<sup>11</sup>:

**Regulation of the European Parliament and of the Council on the internal markets for renewable gas, natural gas and hydrogen, amending Regulations (EU) No 1227/2011, (EU) 2017/1938, (EU) 2019/942 and (EU) 2022/869 and Decision (EU) 2017/684 and repealing Regulation (EC) No. 715/2009 (also known as the Hydrogen and Decarbonised Gas Market Package):**

- ▲ elaboration of network codes (NCs);
- ▲ adoption of:
  - I. common network operation tools (CNOTs);
  - II. a non-binding Union-wide ten-year network development plan (TYNDP) including a European supply adequacy outlook;
  - III. recommendations relating to the coordination of technical cooperation between Union and third country TSOs;
  - IV. recommendations to TSOs on their technical cooperation with distribution system operators and hydrogen network operators;
  - V. an annual work programme;
  - VI. an annual report;
  - VII. annual summer and winter supply outlooks;
  - VIII. a gas quality monitoring report by 1 January 2025 ;
  - IX. an annual report including the quantity of renewable gas and low-carbon gas injected into the natural gas network
- ▲ obligation of monitoring and analysing the implementation of NCs and the Guidelines adopted by the Commission and their effect on the harmonisation of applicable rules aimed at facilitating market integration.
- ▲ views to the Commission on the adoption of the Guidelines, upon request of the latter institution;

- ▲ ENTSOG shall make available all information required by ACER to fulfil its tasks.
- ▲ All TSOs shall cooperate at Union level through ENTSOG in order to promote the completion and functioning of the internal market for natural gas and cross-border trade and to ensure the optimal management, coordinated operation and sound technical evolution of the natural gas transmission network ;
- ▲ TSOs shall establish regional cooperation within the ENTSOG to contribute to the accomplishment of some of its tasks ;
- ▲ until 1 January 2027, develop the 2026 Union-wide network development plan for hydrogen.

**Regulation (EU) No. 1227/2011 of 25 October 2011 on wholesale energy market integrity and transparency (so-called REMIT)**

- ▲ market participants, or a person or authority on their behalf (as ENTSOG), shall provide ACER with a record of wholesale energy market transactions, including orders to trade (Art. 8);
- ▲ cooperation at Union level foreseen (Art. 16);

**Commission Implementing Regulation (EU) No. 1348/2014 of 17 December 2014 on data reporting implementing Article 8(2) and Article 8(6) of Regulation (EU) No. 1227/2011 (so-called REMIT Implementing Act)**

- ▲ ENTSOG shall, on behalf of TSO, report information to ACER in relation to the capacity and use of facilities for transmission of natural gas including planned and unplanned unavailability of these facilities, through the Union-wide central platform (commonly known as ENTSOG TP) (Art. 9);
- ▲ ENTSOG is obliged to make the said information available to ACER as soon as it becomes available on its TP (Art. 9).

<sup>11</sup> This non-exhaustive list is only listing the pieces of legislation in force at the time of drafting this report. ENTSOG expects, however, to be subject to additional/new pieces of legislation in 2025, upon final adoption by the EU Legislator of, notably: the so-called Hydrogen and Decarbonised Gas Package – amending/replacing the gas Directive and Regulation – the so-called ‘gas storage regulation’, etc.



**Commission Regulation (EU) No. 703/2015 of 30 April 2015 establishing a network code on interoperability and data exchange rules (the INT NC)**

- ▲ ENTSOG should monitor and analyse the implementation of this Reg. and report its findings to ACER for allowing the institution to fulfil its tasks (Recital 10);
- ▲ TSOs shall communicate to ENTSOG the mandatory terms of interconnection agreements or any amendments thereof concluded after the entry into force of this Reg. within 10 days after their conclusion or amendment (Art. 4);
- ▲ by 30 June 2015, ENTSOG shall develop and publish a draft interconnection agreement template covering the default terms and conditions set out in the Reg. (Art. 5);
- ▲ taking into account the opinion provided by ACER, ENTSOG shall publish on its website the final template by 31 December 2015 (Art. 5);
- ▲ ENTSOG shall publish on its TP a link to the websites of the TSOs with reference to the Wobbe-index and gross calorific value for gas directly entering their transmission networks for each interconnection point (Art. 16);
- ▲ ENTSOG shall publish every two years a long-term gas quality monitoring outlook for transmission systems (aligned with the TYNDP) in order to identify the potential trends of gas quality parameters and respective potential variability within the next 10 years (Art. 18);
- ▲ For each data exchange requirement, ENTSOG shall develop a CNOT and publish it on its website (Art. 24);
- ▲ ENTSOG shall establish a transparent process for the development of all CNOTs (Art. 24);
- ▲ Where a potential need to change the common data exchange solution is identified, ENTSOG on its own initiative or on the request of ACER, should evaluate relevant technical solutions and produce a cost-benefit analysis of the potential change(s) (Art. 21);
- ▲ by 30 September 2016 at the latest, ENTSOG had to monitor and analyse how TSOs have implemented Chapters II to V of this Reg. TSOs were obliged to send the relevant information before 31 July 2016 (Art. 25).

**Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on Guidelines for Trans-European Energy Infrastructure, amending Regulations No. (EC) 715/2009, (EU) 2019/942 and (EU) 2019/943 and Directives 2009/73/EC and (EU) 2019/944, And Repealing Regulation (EU) No. 347/2013 (so-called TEN-E Regulation)**

- ▲ Involvement of ENTSOG in the preparation of an interlinked model (for the TYNDP) to be developed together with ENTSO-E and ENNOH
- ▲ Involvement of ENTSOG in the preparation of joint scenarios (for the TYNDPs) to be developed together with ENTSO-E and ENNOH
- ▲ Involvement of ENTSOG in the preparation of the Hydrogen Infrastructure Gaps Identification report and project-specific cost-benefit analyses of hydrogen PCI and PMI candidates (for the TYNDP 2024 and TYNDP 2026) to be developed together with ENNOH.

**Regulation (EU) 2017/1938 of 25 October 2017 of the European Parliament and of the Council concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 (the 'SOS Regulation'<sup>12</sup>)**

- ▲ Obligation for ENTSOG to perform an EU-wide gas supply and infrastructure disruption simulation in order to provide a high-level overview of the major supply risks for the EU
- ▲ Participation in in the Gas Coordination Group
- ▲ Obligations for the TSOs, in the event of a regional or Union emergency, to cooperate and exchange information using the ReCo System for Gas established by ENTSOG.

12 As amended by Regulation (EU) 2022/1032 of the European Parliament and the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.



**Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013 (the CAM NC)**

- ▲ ENTSOG is required to publish the auction calendar (by January of every calendar year for auctions taking place during the period of March until February of the following calendar year) (Art. 3);
- ▲ ENTSOG has facilitated the establishment of joint booking platforms (Art. 37).
- ▲ ENTSOG is involved in a process by which terms and conditions of TSOs across the Union for bundled capacity products should be assessed and aligned to the extent possible, with a view to creating a common template of terms and conditions (Recital 10);
- ▲ within nine months from the entry into force of this Regulation ENTSOG shall, after consulting stakeholders, review and create a catalogue of the applicable main terms and conditions of the transport contract(s) of the TSOs in relation to bundled capacity products (Art. 20);
- ▲ in particular, ENTSOG shall analyse existing transport contracts, identifying and categorising differences concerning the main terms and conditions and the reasons for such differences and publish its findings in a report (Art. 20);
- ▲ on the basis of the said report, ENTSOG shall develop and publish a template for the main terms and conditions, covering contractual provisions which are not affected by fundamental differences in principles of national law or jurisprudence, for the offer of bundled capacity products (Art. 20);
- ▲ no later than three months after receiving the ACER's opinion, ENTSOG shall publish on its website the final template for the main terms and conditions (Art. 20);
- ▲ ENTSOG shall finalise at the latest by 1 October 2017, after consulting stakeholders and ACER, a conversion model for existing transport contracts in case of network users holding mismatched unbundled capacity at one side of an interconnection point. This because a free-of-charge capacity conversion service shall be offered by TSOs as from 1 January 2018 (Art. 21);

- ▲ ENTSOG shall coordinate and assist the completion of the demand assessment reports including by providing a standard template and publishing the reports on ENTSOG's website (Art. 26);

- ▲ in order to assist ACER in its implementation monitoring, ENTSOG shall monitor and analyse how TSOs have implemented the new version of CAM in accordance with Article 8(8) and (9) of Regulation (EC) No.715/2009. In particular, ENTSOG shall ensure the completeness and correctness of all relevant information from TSOs. ENTSOG shall submit to ACER that information by 31 March 2019 (Art. 38);

- ▲ ENTSOG shall monitor and analyse effects of network codes and the Guidelines on the harmonisation of applicable rules aimed at facilitating market integration (Regulation (EC) No 715/2009 Art. 8(8)).

**Commission Regulation (EU) 2017/460 of 17 March 2017 establishing a network code on harmonised transmission tariff structures for gas (the TAR NC)**

- ▲ in order to assist ACER in its implementation monitoring, ENTSOG shall monitor and analyse in accordance with Article 8(8) and (9) of Regulation (EC) No. 715/2009 how transmission system operators have implemented the TAR NC. In particular, ENTSOG shall ensure the completeness and correctness of all relevant information provided by transmission system operators. ENTSOG shall submit to ACER that information in accordance with deadlines set out in the TAR NC (Art. 36);
- ▲ provide feedback on the template that ACER shall develop for the consultation document (Art. 26).

# 10 ABBREVIATIONS

	Definition		Definition
<b>ACER</b>	Agency for the Cooperation of Energy Regulators	<b>GRIP</b>	Gas Regional Investment Plan
<b>API</b>	Application Programming Interface	<b>HNO</b>	Hydrogen Network Operator
<b>AWP</b>	Annual Work Programme	<b>IA</b>	Interconnection Agreement
<b>BAL NC</b>	Network Code on Gas Balancing	<b>ICM</b>	Industrial Carbon Management
<b>BRS</b>	Business Requirements Specifications	<b>IGI</b>	Infrastructure Gaps Identification
<b>CAM NC</b>	Network Code on Capacity Allocation Mechanisms	<b>ILM</b>	Interlinked Model
<b>CBA</b>	Cost-Benefit Analysis	<b>IMR</b>	Implementation Monitoring Report
<b>CCUS</b>	Carbon Capture, Utilisation and Storage	<b>INT NC</b>	Network Code on Interoperability and Data Exchange Rules
<b>CEN</b>	European Committee for Standardisation	<b>IP</b>	Interconnection Point
<b>CMP GL</b>	Congestion Management Procedures Guidelines	<b>IPP</b>	Innovative Projects Platform
<b>CNOT</b>	Common Network Operations Tools	<b>KG</b>	Kernel Group
<b>DSO</b>	Distribution System Operator	<b>LAG</b>	Legal Advisory Group
<b>EASEE-gas</b>	European Association for the Streamlining of Energy Exchange – gas	<b>LIO</b>	Local Issuing Office
<b>EC</b>	European Commission	<b>MS</b>	Member States
<b>ECP</b>	External Contact Platform	<b>NC IMG</b>	Network Code Implementation and Monitoring Group
<b>EIC</b>	Energy Identification Code	<b>PCI</b>	Projects of Common Interest
<b>ENNOH</b>	European Network of Network Operators for Hydrogen	<b>PDWS</b>	Professional Data Warehouse System
<b>ENTSO-E</b>	European Network of Transmission System Operators for Electricity	<b>PMI</b>	Projects of Mutual Interest
<b>ENTSOG</b>	European Network of Transmission System Operators for Gas	<b>RDI</b>	Research, Development, and Innovation
<b>ESI</b>	Energy System Integration	<b>ReCo</b>	Regional Cooperation
<b>ETR</b>	Energy Transition Related	<b>REMIT</b>	Regulation on Energy Market Integrity and Transparency
<b>EU</b>	European Union	<b>RSS</b>	Really Simple Syndication
<b>GCG</b>	Gas Coordination Group	<b>SEEG</b>	Smart Energy Expert Group
<b>GERG</b>	European Gas Research Group	<b>SFGas</b>	Sector Forum Gas
<b>GIE</b>	Gas Infrastructure Europe	<b>SoS</b>	Security of Supply
<b>GIS</b>	Geographic Information System	<b>SRG</b>	Stakeholder Reference Group
<b>GQ</b>	Gas Quality	<b>TP</b>	Transparency Platform
<b>GQO</b>	Gas Quality Outlook	<b>TF</b>	Task Force
<b>GQS</b>	Gas Quality Study	<b>TAR NC</b>	Network Code on Harmonised Transmission Tariff Structures for Gas
		<b>TSO</b>	Transmission System Operator
		<b>TYNDP</b>	Ten-Year Network Development Plan
		<b>WG</b>	Working Group

# ADDITIONAL NOTE

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