

ANNUAL WORK PROGRAMME

2022

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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 2022 edition of the Annual Work Programme (AWP), as required by Regulation (EC) 715/2009. An Annex has been included to provide an overview on the legal basis for ENTSOG's primary tasks.

ENTSOG's main tasks include monitoring Network Code implementation, development of its Ten-Year Network Development Plans (TYNDP) – in cooperation with ENTSO-E – and Summer and Winter Supply Outlook reports, transparency, and coordination of network operations under normal and emergency conditions. In addition, ENTSOG also addresses upcoming objectives resulting from EU energy and climate policy. The ENTSOG team will continue to work to strengthen the synergies between the gas and electricity sectors, and those between natural gas and low carbon gases – including hydrogen – to facilitate energy flexibility, storage, international transportation capacity and security of supply.

ENTSOG and its Members will actively participate in the discussions on, and the development of, the upcoming energy and climate legislative proposals as part of the European Green Deal, in particular the 'Fit for 55' regulatory package. ENTSOG will work on strategic topics, specifically those required to facilitate gas grids' constructive role in the energy transition, e.g., the repurposing, retrofitting and refurbishment of the gas grids for the transport of hydrogen. ENTSOG will continue to contribute to the development of new legislation that follows the EU Energy System Integration and Hydrogen Strategy, the reopening of the TEN-E framework, and the upcoming Hydrogen and Gas Markets Decarbonisation package. ENTSOG will continue to work on the principles outlined in the ENTSOG 2050 Roadmap for Gas Grids and in its Roadmap Action Plan, promoting gas TSOs' cooperation and providing contributions to the EU decarbonisation and energy system integration agenda.

As for previous years, and to continuously improve its way of working and developing its relations with key stakeholders, ENTSOG will continue with regular engagement with European Commission (EC), ACER, stakeholders and ENTSOG's members to ensure a constructive and effective mutual dialogue.

In 2022, ENTSOG will contribute to the Madrid Forum and Copenhagen Energy Infrastructure Forum, both hosted by the EC. The Madrid Forum addresses topics such as the implementation of the network codes and the cross-border trade of gas, while the Copenhagen Energy Infrastructure Forum addresses the different aspects of infrastructure planning and development for both electricity and gas. ENTSOG will also continue to participate in the EC's Implementation and Monitoring Group, which addresses high level issues in relation to implementation and monitoring of network codes effects for both gas and electricity.

In the aftermath of Brexit, it has been agreed with the EC that a special framework of cooperation is established between ENTSOG and the UK gas TSOs. It is proposed this takes the form of a 'EU-UK Gas TSOs Task Force', and ad hoc participation by UK TSOs at ENTSOG Working Group meetings, as required. The areas for cooperation between ENTSOG and UK TSOs in 2022 include topics such as gas markets, access to networks, security of gas supply, infrastructure planning, offshore energy, and efficient use of gas interconnectors.

And finally, ENTSOG will continue its work as a *Pro-active, Trusted Adviser* on gas transmission related topics on a European level in 2022 and beyond, to support the achievement of the EU goals of competitiveness, security of supply and sustainability. ENTSOG also recognises the role it can play in the EU's recovery plan, post the COVID-19 pandemic, in securing the uninterrupted energy delivery, but also by integrating TSOs' activities related to Energy Transition and grids readiness for renewable and low carbon gases. 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, hydrogen agenda, and the future of gas grids.

1.1 SUMMARY OF ENTSOG'S ACTIVITIES IN 2022

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

- ▲ Networks Codes and Guidelines (Section 2)
- ▲ Scenarios and Infrastructure (Section 3)
- ▲ Security of Supply (Section 4)
- ▲ Energy Transition (Section 5)

The AWP had previously focused on the development process of the Third Energy Package network codes, a cornerstone of the organisation's activities, and this will continue with support to processes associated with the implementation activities.

Going forward, ENTSOG's efforts will be on continued monitoring of the implementation and effects of the Congestion Management Procedure (CMP) Guidelines, Capacity Allocation Mechanisms Network Code (CAM NC), Tariff Network Code (TAR NC), Balancing Network Code (BAL NC) and implementation of the Interoperability and

Data Exchange Network Code (INT NC) – these are addressed in Section 2 of this document. The joint activity of managing the Functionality Process with ACER and Transparency Guidelines (including REMIT) are also included in Section 2. A summary of regulatory references for these are included in the Annex – Section 8.

The activities associated with the other topics listed above are described in Sections 3 to 5. Research and Development activities undertaken by ENTSOG are described in Section 6. Details on ENTSOG's internal supporting organisation are provided in Sections 7 of this document.

Each topic in Section 2–6 includes objectives, key deliverables and activities and a programme of activities for 2021. ENTSOG's key work areas and deliverables are highlighted in Sections 1.1.1 to 1.1.6 below and summarised in the 'Programme of Activities' tables in each section.

1.1.1 NETWORK CODES AND GUIDELINES

ENTSOG will continue in 2022 to provide help and support to its Members and other interested parties on Network Code and Guideline related topics and will continue with monitoring activities. ENTSOG will work with ACER in providing joint solutions to issues posted by the stakeholders on the Gas Network Codes Functionality Platform.

Interoperability work in 2022 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.

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.



1.1.2 SCENARIOS AND INFRASTRUCTURE

For the first time, in TYNDP 2020, ENTSOG has collected ETR (Energy Transition) projects, representing approximately 28% of the projects submitted to TYNDP. ENTSOG has already started working, which will continue in 2022, on a more detailed and refined project categorisation to be applied to all TYNDP 2022 projects relevant for the energy transition and to meet the decarbonisation targets. ENTSOG will also adapt the TYNDP assessment approach to the new project categories, with particular focus on renewable/low-carbon-related infrastructures and hydrogen-related infrastructures.

ENTSOG and ENTSO-E plan to publish their joint final TYNDP 2022 Scenario Report in Q1 2022, and both will work further on the adapted version of the Interlinked Model. In 2022, ENTSOG will work on

the Infrastructure Report, System Assessment and Project Specific Cost Benefit Analysis (PS-CBA), among other supporting documentation, as part of the draft TYNDP 2022. The draft TYNDP will be publicly consulted and presented during a public workshop aimed at collecting feedback, to facilitate improved involvement and transparency. ENTSOG will submit the draft TYNDP 2022 to ACER in the second half of 2022. The timing of the final publication will depend on the engagement with external stakeholders (ENTSO-E, ACER and European Commission and others).

Depending on the date of the final publication of the TYNDP 2022 scenario report, ENTSOG and ENTSO-E plan to start the scenario building process for the TYNDP 2024 in Q1 2022.

1.1.3 SECURITY OF SUPPLY

ENTSOG continues its assessment of the European security of supply, through preparation of deliverables Summer Supply Outlook 2022 and Summer 2021 Review and the Winter Supply Outlook 2022–2023 and Winter 2021–2022 Review.

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. ENTSOG will continue to support the EC and the Gas Coordination Group (GCG) in implementing the revised Security of Supply Regulation, in particular by assisting, if requested, in preparing and implementing solidarity principles, regional emergency plans, and preventative action plans. Further

work is also expected in assisting the Energy Community Secretariat and Contracting Parties in Network Code implementation workshops and queries.

ENTSOG will monitor the use of the CNOTs for emergency conditions, as adopted by ACER in 2019 – along with the evolution of operational processes and needs – and will revise them if needed.

Finally, taking into account 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.



Picture courtesy of Enagás

1.1.4 ENERGY TRANSITION

ENTSOG will in 2022 continue to participate in and contribute to the realisation of European Green Deal, including legislative initiatives within the 'Fit for 55' package. ENTSOG will in particular focus on identified strategic topics such as Energy System Integration, development of the Hydrogen and Gas Market Decarbonisation package, revision of the Renewable Energy Directive (RED II), the future role of the gas TSOs, guarantees of origin/certificates, TENE Regulation reopening, gas quality and hydrogen transport and handling, methane emissions, cybersecurity and regional cooperation.

On these topics, ENTSOG will consider any applicable initiatives and proposals published by the EC, ACER or other relevant stakeholders, as well as liaise internally with different working groups and task forces. ENTSOG will continue working on

the principles developed under its 2050 Roadmap for Gas Grids and its Action Plan, specifically and actively communicating through the channels established therein.

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 Handling¹
- ▲ Prime Mover Group on Guarantees of Origin
- ▲ European Clean Hydrogen Alliance Roundtable on Clean Hydrogen Transmission and Distribution
- ▲ Participate in Strategic Energy Technology (SET) Plan, Action 6 IWG on Energy Efficiency in Industry.

¹ 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.

1.1.5 MANAGEMENT SUPPORT

In 2022, the ENTSOG Management Support team will continue to work with the Business Areas and management in Brussels, and with ENTSOG members. Support will be through the Admin, Legal and Corporate Affairs, HR, Finance, and IT functions, to ensure there is a robust platform for ENTSOG activities and deliverables.

The Management Support team is responsible for the meetings of the General Assembly and the Management Board as well as coordinating ENTSOG 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 col-

laboration with the Energy Community. Additionally, the Management Support team will facilitate the new framework for cooperation between ENTSOG and the UK TSOs in 2022. The Management Support team also, along with ENTSOG Business Area Directors, prepare ENTSOG's contribution to the EC's Network Codes Implementation and Monitoring Group meetings.

The Annual Report and AWP are the result of combined efforts from the entire ENTSOG team – the Annual Report assesses ENTSOG's work and achievements retrospectively for each given year. The ENTSOG AWP contains the expected activities for ENTSOG in the upcoming year, taking into account ACER's opinions on ENTSOG's work and allowing the interested stakeholders to prepare their activities vis-à-vis ENTSOG.



Picture courtesy of Gasgrid Finland

2 NETWORK CODES AND GUIDELINES

EC Regulation 715/2009 requires European-wide Network Codes and Guidelines to be developed by ENTSOG to harmonise the applicable rules aimed at facilitating market integration.

The currently foreseen codes and guidelines have been developed. ENTSOG is required to monitor the implementation of the Network Codes and the Guidelines and their effect on the harmonisation of applicable rules aimed at facilitating market integration, which will continue in 2022 and beyond. ENTSOG will also continue to actively participate in the further development of the Network Codes and the Guidelines through the Functionality Process as well as the formal regulatory amendment process, as required. Additionally, ENTSOG will consider any spe-

cific legislative developments arising from the European Commission's 'Fit for 55' legislative package.

In relation to transparency, specific obligations for gas TSOs have been 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.

2.1 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 (EC) 2017/459 on 6 April 2017 and repealed the previous Regulation (EC) 984/2013.

The amended CAM NC includes rules for determining and marketing incremental capacity guar-

anteeing a European-wide harmonised procedure. It contains provisions for a capacity conversion service of unbundled capacity products as well as for harmonising the main terms and conditions for bundled capacity products. New requirements for offering interruptible capacity and new auction dates and rules for long-term capacity products are also introduced.

In 2022, ENTSOG will continue to support the implementation of the CAM NC by providing members and stakeholders advice and guidance throughout the implementation process.

2.1.1 OBJECTIVES

- ▲ To support the implementation and application of CAM NC.
- ▲ To monitor and analyse the implementation of the CAM NC and its effect on the harmonisation of applicable rules aimed at facilitating market integration.
- ▲ To monitor the incremental capacity process initiated in 2021 according to Chapter V of the CAM NC and provide support to members throughout the different steps of this process, as well as the one that will be initiated in 2023 immediately following the annual yearly auctions.
- ▲ 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 Regulation interpretation by relevant EU bodies as well as via knowledge sharing and good practices dissemination, including assistance to the Energy Community in implementing the CAM NC.
- ▲ To develop documents/solutions stemming from obligations on ENTSOG outlined in the CAM NC (including the auction calendar).

2.1.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Commence work on the CAM NC Implementation and Effect Monitoring Report to be published in 2023.
- ▲ CAM NC Auction Calendar.
- ▲ Issue solutions delivery from the joint ACER and ENTSOG functionality process involving stakeholders.
- ▲ Update of Business Requirements Specification (BRS) CAM if requested by TSO/Stakeholders.
- ▲ Monitor the progress of the third incremental capacity process and support members throughout the different steps of this process.
- ▲ Developing ENTSOG positions on capacity related issues including responses to public consultations and ACER reports.

2.1.3 PROGRAMME OF ACTIVITIES

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

CAM NC	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
CAM NC auction calendar												
Prepare for CAM NC monitoring report 2021–2022 (implementation & effect) to be delivered in 2023												
Incremental Capacity Process – support of TSOs with the incremental capacity process and analysis and elaboration of a report covering the process initiated in 2021												
Analyses of ACER reports and other capacity relevant reports												
Monitor the activities and develop ENTSOG positions on capacity relevant issues incl. responses on public consultations												
Support of Energy community in implementing CAM NC and CMP GL												
Functionality Process for CAM NC												
CAM BRS update (if requested by TSO/Stakeholders)												

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

* The CAM NC does not stipulate a fix date for which ENTSOG should produce and publish a report on the analysis of the implementation and effect of the CAM NC in 2023. Article 38 (1) of the CAM NC only refers to the first date in which ENTSOG had to submit information to ACER "In particular, ENTSOG shall ensure the completeness and correctness of all relevant information from transmission system operators. ENTSOG shall submit to the Agency that information by 31 March 2019". Therefore, the publication date in 2023 may change subject to the draft process and discussions within ENTSOG's competent decision-making bodies.

2.2 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 2022, 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.

2.2.1 OBJECTIVES

- ▲ To support the implementation and application of the BAL NC.
- ▲ To publish the 2021 BAL NC Implementation and Effect Monitoring Report, giving particular focus on the countries where the implementation of the BAL NC is still ongoing.
- ▲ 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 Regulation interpretation by relevant EU bodies as well as via knowledge sharing and good practices dissemination, 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.

2.2.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Publish the 2021 BAL NC Implementation and Effect Monitoring Report.
- ▲ Issue solutions delivery from the joint ACER and ENTSOG functionality process involving stakeholders.
- ▲ Update of Business Requirements Specification (BRS) for Balancing processes if requested by TSO/Stakeholders.
- ▲ Developing ENTSOG positions on balancing related issues including responses to public consultations and ACER reports.

2.2.3 PROGRAMME OF ACTIVITIES

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

Balancing NC	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Publication of 2021 BAL NC monitoring report (implementation & effect)												
Support and assistance of TSOs in the implementation of the BAL NC												
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 on public consultations and ACER reports												
Support of Energy Community in implementing BAL NC												
Functionality Process for BAL NC												

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

2.3 TARIFF NETWORK CODE

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 was 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).

The TAR NC contributes to achieving tariffs, or methodologies used to calculate them, which are transparent, consider the need for system integrity

and its improvement, reflect the actual cost incurred, are non-discriminatory, facilitate efficient gas trade and competition, avoid cross-subsidies between network users, and provide incentives for investment.

In 2022, 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.

2.3.1 OBJECTIVES

- ▲ To support the implementation and application of the TAR NC.
- ▲ To publish the 2021 TAR NC Implementation and Effect Monitoring Report, in order to assess the ongoing application of the TAR NC in the EU.
- ▲ 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 Regulation interpretation by relevant EU bodies as well as via knowledge sharing and good practices dissemination, including assistance to the Energy Community in implementing the TAR NC.
- ▲ To develop documents/solutions stemming from obligations on ENTSOG outlined in the TAR NC (for example regarding transparency requirements).



Picture courtesy of Gasgrid Finland

2.3.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Publish the 2021 TAR NC Implementation and Effect Monitoring Report.
- ▲ Issue solutions delivery from the joint ACER and ENTSG functionality process involving stakeholders.
- ▲ Develop ENTSG positions on tariff-related issues including responses to public consultations and ACER reports.

2.3.3 PROGRAMME OF ACTIVITIES

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

Tariff NC	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Publication of 2021 TAR NC monitoring report (implementation & effect)												
Support and assistance of TSOs in the implementation of the TAR NC												
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 on public consultations												
Support of Energy Community in implementing TAR NC												
Functionality Process for TAR NC												

■ Activity periods

■ Key deliverables available to external stakeholders

■ Undetermined workload

2.4 INTEROPERABILITY AND DATA EXCHANGE NETWORK CODE

Commission Regulation (EU) 2015/703 established a network code on interoperability and data exchange rules 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 neces-

sary 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.

2.4.1 OBJECTIVES

- ▲ To support the implementation and application of the Network Code on Interoperability and Data Exchange rules (INT NC).
- ▲ To investigate the further steps of harmonisation regarding common data exchange solutions.
- ▲ To facilitate and support coordination of technical cooperation between Member States, Energy Community and third-country transmission system operators (Art 8(3)c) Regulation (EC) No. 715/2009).

2.4.2 KEY ACTIVITIES AND DELIVERABLES

2.4.2.1 Monitoring of the implementation and functioning of the Network Code on Interoperability and Data Exchange Rule:

- ▲ Publish the 2021 INT NC Implementation and Effect Monitoring Report.
- ▲ Review of selected Interconnection Points by ACER, to document detailed evidence of Interconnection Agreements' (IAs') compliance with the INT NC as a complementary part of the Implementation Monitoring Report. The results of the IMR will be considered as an input for a dialogue on a possible amendment of the INT NC.
- ▲ 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.
- ▲ Possible amendment of the INT NC in order to implement the agreed solution for the reported FUNC issue (e.g. reported FUNC issue "[Communication Protocol and encryption](#)")

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

- ▲ Monitor the implementation and functionality of published CNOTs for CAM/CMP and Nominations and matching procedures, including the related Business Requirement Specifications, Implementation Guidelines, and the technical communication profiles for the selected common solutions for Data Exchange.
- ▲ Organisation of a public stakeholder workshop related to the implementation of CNOTs, if needed.
- ▲ Cooperation with EASEE-gas, CEF, ACER and other relevant stakeholders in the field of data exchange.
- ▲ Analyse any potential requests concerning Data Exchange harmonisation.

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

- ▲ If required, update of 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.
- ▲ Due to the COVID-19 pandemic situation ENTSOG could not launch the planned 2021 workshop between EU TSOs and relevant adjacent non-EU TSOs (parties acting as TSOs) from third countries which are supplying or transiting gas to EU (e.g., North African countries, Russia, Turkey). The workshop is now planned for 2022. The goal of the workshop is to discuss future steps for strengthening technical cooperation.
- ▲ Operate the Local Issuing Office for Energy Identification Coding scheme
- ▲ Management of EIC Codes requests and updates from/to the Central Issuing Office (CIO/ENTSOE) and ENTSOG website
- ▲ Cooperation with ENTSOE to further streamline and standardise the implementation of the scheme in the gas sector.

2.4.2.4 Gas Quality and Hydrogen handling

- ▲ Publish the fourth edition of the Gas Quality Outlook report for the TYNDP 2022.
- ▲ Cooperation with CEN, particularly:
 - In the revision of the standard EN16726, including the normative work for including recommendations and considerations on Wobbe index aspects related to H-gas in the revision of the standard.
 - Work related to the gas transmission network readiness to integrate hydrogen and other renewable and decarbonised gases.
 - CEN SFGas GQS TF3 Oxygen² and the development of the CEN standard on hydrogen specifications (Gas infrastructure – Quality of gas – Hydrogen used in converted/rededicated gas systems)³.
- ▲ Monitoring standardisation activities regarding the injection of hydrogen into the gas grid through the CEN Sector Forum Energy Management Working Group Hydrogen.
- ▲ Cooperation with EASEE-gas, GERG, GIE, Marcogaz, DSOs associations (CEDEC, Eurogas, GEODE, GD4S) and other industry organisations in the field of gas quality and hydrogen handling
- ▲ Informing and engaging with stakeholders either via the continuation of the dedicated Prime Movers' Group on gas quality and hydrogen handling or stakeholder workshops.

2 CEN SFGas GQS TF3 Oxygen = CEN Sector Forum Gas, Gas Quality Study, Task Force 3 focused on Oxygen parameter.

3 The standard will define the quality of hydrogen, i.e., its parameters and limiting values, used within converted/rededicated European natural gas systems at the exit point to the end-user.

2.4.3 PROGRAMME OF ACTIVITIES

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

Interoperability and Data Exchange NC	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Prepare for the INT NC monitoring report update, to be delivered in 2022 considering the agreed main aspects agreed with ACER.												
Analyse ACER's reports and opinions regarding the INT NC and relevant CNOTs												
Respond to queries and provide advice to TSOs and stakeholders on the INT NC and relevant CNOTs												
Support and assistance of TSOs and Energy Community in the implementation of the INT NC and relevant CNOTs												
Update of CNOTs												
Functionality Process for the INT NC												
Data Exchange workshop												
CAM/CMP BRS update (if requested by TSO/Stakeholders)												
Nomination & Matching BRS update (if requested by TSO/Stakeholders)												
Workshop between EU TSOs and adjacent non-EU TSOs												
Management of EIC codes												
ENTSOG – GIE cooperation on EC's Methane Emissions initiative.												
Cooperation with ENTSOE in terms of Cyber Security												
Continuation of the dialogue with stakeholders on European and national level in order to establish a common encryption method for AS4												
Analysis of interoperability topics in relation to ENTSOG 2050 roadmap for Gas Grids												
Cooperation with stakeholders on Gas Quality and hydrogen handling (e.g., via prime movers' group, stakeholder workshops)												
Cooperation with CEN in standardisation activities												
Organise a Workshop on Gas Quality & hydrogen handling												
Gas Quality Outlook 2022												

Activity periods

Key deliverables available to external stakeholders

Undetermined workload

2.5 CONGESTION MANAGEMENT PROCEDURES GUIDELINES

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

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.

In 2022, ENTSOG will continue to support the implementation of the CMP GLs by providing members and stakeholders advice and guidance throughout the implementation process.

2.5.1 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 facilitating 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 Regulation interpretation by relevant EU bodies as well as via knowledge sharing and good practices dissemination, including assistance to the Energy Community in implementing the CMP GLs.

2.5.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ Commence work on the CMP GL Implementation and Effect Monitoring Report to be published in 2023.
- ▲ Issue solutions delivery from the joint ACER and ENTSOG Functionality Process involving stakeholders.
- ▲ Update of Business Requirements Specification (BRS) CMP if requested by TSO/Stakeholders.
- ▲ Developing ENTSOG positions on congestion management related issues including responses to public consultations and ACER reports.

2.5.3 PROGRAMME OF ACTIVITIES

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

CMP Guidelines	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Prepare for 2021–2022 CMP GL monitoring report (implementation & effect) to be delivered in 2023*												
Support and assistance of TSOs in the implementation of the CMP GL												
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 on public consultations												
Functionality Process for CMP												

■ Activity periods ■ Undetermined workload

* The CMP GLs do not stipulate a date for which ENTSOG should produce and publish a report on the analysis of the implementation and effect of the CMP GLs in 2023. Therefore, the publication date in 2023 may change subject to the draft process and discussions within ENTSOG's competent decision-making bodies.

2.6 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 have been introduced through Regulation (EC) No 715/2009, which defines 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) and its Commission Implementing Regulation (EU) No 1348/2014 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.

2.6.1 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 Regulation (EC) No 715/2009, 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.
- ▲ Monitor, analyse and apply the legal transparency and reporting requirements coming from EU legislation such as
 - Regulation (EC) No 715/2009
 - Regulation (EU) No 1227/2011
 - Regulation (EU) No 1348/2014
 - Regulation (EU) 2015/703
 - Regulation (EU) 2017/459
 - Regulation (EU) 2017/460
 - Regulation (EU) 2019/942
- ▲ 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.

Picture courtesy of Gasgrid Finland



2.6.2 KEY ACTIVITIES AND DELIVERABLES

In line with the Annual Work Programme 2021, 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 all of them on an interactive map, in charts, in tables, in downloads, 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:

- ▲ Strive to continue improving the user experience with TP based on feedback from public workshops, the Functionality Platform, satisfaction surveys, and the TP Help Section.
- ▲ Organise the workshop on transparency to receive feedback from stakeholders.
- ▲ Evaluate the communication between ENTSOG and the TP users in terms of newsletters 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 REMIT fees' provisions as well as on data collection processes for TSOs and ENTSOG under REMIT obligations. In 2022, this could include activities to implement the updated electronic formats for REMIT reporting, but this is subject to announcement of timeline and readiness from ACER.
- ▲ Maintain, together with the gas TSOs, a close working relationship with ACER's Market Integrity and Transparency department 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 the Agency, e.g., REMIT Expert Group, RRM User Group, and Roundtable for inside information disclosure.
- ▲ Provide input on ENTSOG's position about the publication provisions of the new regulatory package, Smart Sector Integration, and preparation to implement.

2.6.3 SUPPORTING ACTIVITIES

- ▲ Facilitate required data collection processes when required by the legislation, e.g., the information for ACER's 2022 Congestion Monitoring Report.
- ▲ Support TSOs from Energy Community Contracting Parties on their ENTSOG TP transparency publications.
- ▲ Support the Agency's REMIT teams and ACER stakeholder user groups, e.g., REMIT Expert Group, RRM User Group, Roundtable for inside information disclosure etc., with input on the processes and practices on the EU gas market relevant for the REMIT implementation and developments.
- ▲ 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.
- ▲ 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).
- ▲ Support the Regional Coordination System for Gas (ReCo System for Gas).

2.6.4 PROGRAMME OF ACTIVITIES

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

Transparency Guidelines	2022											
	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

2.7 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) 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.⁴ The process includes data collection, launch of public consultations and analysis of results.

⁴ 21 issues have been reported on the FUNC Platform, 18 out of these issues have been solved, closed, or withdrawn by the issue poster, 3 issues are currently open for joint assessment (Q3 2021).

2.7.1 OBJECTIVES

ACER and ENTSOG provide stakeholders a platform to raise and discuss implementation and operational Network Codes and Guidelines issues and

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

2.7.2 KEY ACTIVITIES AND DELIVERABLES

In 2022, it is anticipated that ENTSOG will provide further joint ACER and ENTSOG solutions to issues posted by the stakeholders on the Functionality Platform.

In July 2020 an updated version of the FUNC Platform was launched, aimed at making the Functionality Process more efficient, transparent, and easier to use for the involved stakeholders. Some follow-up tasks to this update are anticipated to take place also in 2022, as well as improvements to the Cooperation Guidelines between ACER and ENTSOG.

2.7.3 PROGRAMME OF ACTIVITIES

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

Functionality Process	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Develop and publish issue solutions												
Process improvement												

■ Activity periods

2.8 SUPPORTING ACTIVITIES

2.8.1 IMPLEMENTATION AND MONITORING NETWORK CODE GROUP

The Network Code Implementation and Monitoring Group (NC IMG) is a forum for high level strategic coordination between the European Commission, the Agency for the Cooperation of Energy Regulators (ACER), the European Network of Transmission System Operators for Electricity (ENTSO-E), and the European Network of Transmission System Operators for Gas (ENTSOG).

The NC IMG oversees the implementation and implementation monitoring of electricity network codes and gas network codes in the EU.

The IMG for Network Codes was launched by the European Commission on 3 May 2017 at the event celebrating the legal endorsement of the last Network Code that both ENTSOG and ENTSO-E were tasked to deliver, as required by the Third Energy Package.

ENTSOG has been among the founding members of the group and is represented at every meeting to report the progress made in NC implementation as well as to discuss the strategic issues related to codes and guidelines effects. It is also the forum at which the issues related to codes and guidelines can be effectively discussed and solved in a coordinated manner between the ENTSOs, the Regulators and the Commission.

ENTSOG reports also on the stakeholders' dialogue framed by the Functionality Process. ENTSOG also present the progress made in Transparency Platform development.



Picture courtesy of Gaz-System

3 SCENARIOS AND INFRASTRUCTURE

The deliverables and activities outlined in this Section reflect ENTSG obligations under Regulations (EC) 715/2009 (3rd Energy Package), (EU) 2017/1938 (Security of Supply), (EU) 347/2013 (Energy Infrastructure Guidelines) 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 ENTSG's main deliverables are short and medium to long-term assessments such as the Ten-Year Network Development Plan (TYNDP), the Union-wide network development plan. In addition, the ENTSG maps show commitment to transparency and to providing stakeholders with easily accessible and high added value information.

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

The TYNDP development is a three-year process (even though published every second year), with scenario development taking two years, and the infrastructure and project assessment taking an additional year. The TYNDP Scenarios are jointly developed by ENTSG and ENTSO-E following an extensive engagement and cooperation with external stakeholders. This process is the entry point

to two parallel subsequent processes, to which ENTSG provides its support: the development of the Gas Regional Investment Plans (GRIPs) and the Projects of Common Interest (PCI) selection process. The overall TYNDP and subsequent processes take a total of four years and are repeated every second year.

It is important to note that in the context of the revision of the TEN-E regulation expected at the end of 2021, the content and the timeline of the deliverables are highly dependent on the new objectives and the governance process to be set out in the revised regulation. At the draft phase of the AWP 2022, it is not possible with certainty to plan for the regulatory tasks under TEN-E.

3.1 OBJECTIVES

- ▲ To meet expectations of market participants regarding the assessment of infrastructure-related market integration and its contribution to meeting the pillars of the European Energy Policy (sustainability, competition and security of supply), as well as the assessment of 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 identification through to the coming on-stream of the respective infrastructure solutions.
- ▲ To support the Regional Groups, established by the EC, in the process of selection of PCIs by providing the technical background and methodologies with regard to cost-benefit analysis of projects.
- ▲ To provide support to institutions and stakeholders in the understanding of gas infrastructure.
- ▲ To develop ENTSG skills, methodologies and tools to sustain the achievement of the above objectives.

3.2 KEY DELIVERABLES AND ACTIVITIES

- ▲ Publish final TYNDP 2022 Scenarios.
- ▲ Adaptation of Practical Implementation Document and Project Portal for TYNDP 2022.
- ▲ Support to PCI Project Collection and PCI Selection Process.
- ▲ System Development map 2021, to be published in 2022.
- ▲ Publish draft TYNDP 2022.
- ▲ Adaptation of the current CBA Methodology application to TYNDP2022, and of the internal network model, to include hydrogen infrastructure.
- ▲ Adapting ENTSO-E/ENTSOG Consistent and Interlinked Model for TYNDP 2022 and future editions.

3.2.1 METHODOLOGIES AND MODELLING: ENTSO-E/ENTSOG CONSISTENT AND INTERLINKED MODEL

In line with Regulation (EU) 347/2013, the ENTSOs have submitted the draft version of their consistent and interlinked electricity and gas network and market model (the Interlinked Model) to the Commission and ACER on 21 December 2016, and ACER has issued its opinion on 20 March 2017.

ENTSOE and ENTSOG will continue their joint scenario building process with TYNDP 2022 and subsequent TYNDP editions. The ENTSOs aim at further development of their methodologies to build full-energy scenarios taking into account different direct and indirect interlinkages such as gas fired power generation, Power-to-Gas and hybrid demand solutions.

The ENTSOs acknowledge that ACER Opinion⁵ points at additional potential interlinkages that are not part of the draft Interlinked Model as submitted in December 2016. In line with ACER suggestions, the ENTSOs launched on 17 May 2018 a focus study on the interlinkages between gas and electricity scenarios and projects assessment.

Building on the outcomes of the study, in 2020, ENTSOG and ENTSO-E have started adapting their Interlinked Model. A progress report on screening and dual assessment was published in May 2021⁶.

In 2021 and 2022, ENTSOG and ENTSO-E will further work on the adapted version of the Interlinked Model in view of its implementation in future TYNDP editions. ENTSO-E and ENTSOG will consider that any future improvements on the interlinked model will require alignment with a revised TEN-E regulation, the draft regulation requiring ENTSO-E and ENTSOG to jointly submit by 31 December 2023 to the EC and ACER a consistent and interlinked energy market and network model. This model would include electricity, 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 revised TEN-E regulation.

3.2.2 SCENARIOS FOR TYNDP 2022

The TYNDP 2022 Scenarios development process takes two years in total, starting in 2020. As part of the Interlinked Model, it will build on continuous cooperation between ENTSOG and ENTSO-E, allowing for the evolution of policy and technology to be considered, and for the experience gained from TYNDP 2020 and the joint focus study on the interlinkages between gas and electricity sectors. In this regard, the ENTSOs will further develop their methodology regarding the construction of full-energy scenarios including aspects of sector coupling such as hybrid demand solutions and Power-to-Gas.

By the beginning of 2022, ENTSOG and ENTSO-E plan to have drafted, consulted and published the drafted TYNDP 2022 Scenario report. These tasks include the quantification of demand and supply patterns for their scenarios:

- ▲ A joint data collection for bottom-up gas and electricity data,
- ▲ Electricity market simulations, including major improvements regarding sector coupling (such as market integrated P2G)

5 https://documents.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2007-2017.pdf

6 <https://www.entsog.eu/sites/default/files/2021-05/ILM%20Investigation%20Document.pdf>

- Quantification of gas supply patterns, in particular extra-EU supply potentials for both methane and hydrogen, biomethane production and Power-to-Molecules.

Moreover, the ENTSOs plan to have defined and tested their quantification methodologies and collected technical boundary conditions and trajectories for their scenarios.

During Q1 2022, ENTSOG and ENTSO-E aim to publish their final TYNDP 2022 Scenario Report.

3.2.3 PROJECT COLLECTION AND PROJECT ASSESSMENT

For the first time, in TYNDP 2020, ENTSOG has also collected ETR (Energy Transition) projects. Those are projects which facilitate the integration of renewables, the achievement of decarbonisation and efficiency targets, reduction of other air pollutants, sector coupling initiatives and, more generally, all projects specifically aimed at the energy system transformation for reaching sustainability goals and not already included in the previous project categories.

With particular attention to this new project category, in 2021 ENTSOG is adapting its TYNDP 2022 Practical Implementation Document as well as its Project Portal to be used for the TYNDP 2022 project data collection commencing in

September 2021.

ENTSOG has already started working, which will continue in 2022, on a more detailed and refined project categorisation. The list of collected projects is planned to be published in Q1 2022.

Also taking into account the ongoing discussion on TEN-E regulation revision, ENTSOG will adapt the TYNDP 2022 assessment approach to the new project categories, with particular focus on renewable/low-carbon-related infrastructures and hydrogen-related infrastructures, and their contribution to sustainability.

As usual, ENTSOG will engage with all relevant stakeholders, in particular with the EC and ACER.

3.2.4 TYNDP 2022

During the year 2022 ENTSOG will continue the development process for TYNDP 2022 that was initiated early 2021. TYNDP 2022 will cover the 2022–2050 time horizon.

During the consultation process of TYNDP 2020, stakeholders expressed support and a need for further development in terms of sustainability indicators and energy transition with particular emphasis on hydrogen. Those areas are also addressed in the TEN-E regulation revision due to be published by the end of 2021. ENTSOG has expressed its support to strengthening the sustainability criteria in the revised TEN-E regulation and will work to satisfy the needs expressed by stakeholders in the public consultation procedure. ENTSOG will also adapt the TYNDP to assess new infrastructure categories, including hydrogen projects and other Energy Transition related projects.

The TYNDP 2022 report identifies the infrastructure gaps, namely the priority areas lacking market integration, security of supply, competition or sustainability. The report also assesses where and to

which extent the level of development of gas infrastructure could improve the infrastructure-related market integration, security of supply, competition and sustainability.

TYNDP 2022 represents the basis for the selection of the sixth list of Projects of Common Interest (PCI), both to support the identification by Regional Groups of the investment needs, and to serve as basis for the project-specific cost-benefit analysis of PCI candidates.

ENTSOG will publish the Draft TYNDP 2022 in the second half of 2022, including the Infrastructure Report, System Assessment and Project Specific Cost Benefit Analysis. Following the Draft TYNDP publication and the subsequent public consultation, ENTSOG will submit the TYNDP 2022 to ACER. Final publication will depend on the engagement with external stakeholders (ENTSO-E, ACER and European Commission and others).

TYNDP 2022 will benefit from the latest development of IT/R&D activities by application of the new tool used for modelling, Plexos.

3.2.5 MAPS 2021

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 Development Map and starting from 2018 publish either

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

In 2022, ENTSOG will issue the System Development Map, which can be obtained in hardcopy or downloaded from ENTSOG website.

3.2.6 SCENARIOS FOR TYNDP 2024

Depending on the timing of final publication of the TYNDP 2022 scenario report, ENTSOG and ENTSO-E plan to start the scenario building process for the TYNDP 2024 in Q1 2022. The scenario building process builds on previous experience to further improve the project efficiency (e.g., to enable further developments of the modelling methodology within a short timeframe) and secure the

implementation of stakeholder feedback received for the TYNDP 2022 from the very beginning of the entire process.

The subsequent steps will be similar to the steps taken to develop the TYNDP 2022 scenarios. The publication and consultation of the draft scenario report for TYNDP 2024 is planned for 2023.

3.3 SUPPORTING ACTIVITIES

3.3.1 SUPPORT TO REGIONAL GROUPS ON THE PCI SELECTION PROCESS

To the extent envisioned by the European Commission, ENTSOG will take part at the Cooperation Platform (informal working group) between the European Commission, ACER and ENTSOs, and will participate in and support the work of the Regional Groups established by the EC in the tasks of operating the 6th PCI selection process and monitoring PCIs.

ENTSOG will also support promoters of projects applying for the PCI label, as for the previous PCI selection processes, including through the handling of Project-Specific cost-benefit analysis (PS-CBA) as part of TYNDP, in line with its 2nd CBA Methodology, subsequent TYNDP improvements, and ACER recommendations. The publication of PS-CBA results will provide a transparent tool to all concerned stakeholders taking part to the 6th PCI process.

3.3.2 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.

3.4 PROGRAMME OF ACTIVITIES

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

Scenarios and Infrastructure	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
TYNDP 2022*												
Update and publication of final Scenario Report	Activity periods	Key deliverables available to external stakeholders										
Draft project list publication	Activity periods	Key deliverables available to external stakeholders										
Draft System Assessment	Activity periods		Activity periods	Activity periods	Activity periods	Activity periods	Key deliverables available to external stakeholders					
Draft Infrastructure Report	Activity periods		Activity periods	Activity periods	Activity periods	Activity periods	Key deliverables available to external stakeholders					
Draft PS-CBAs			Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Key deliverables available to external stakeholders				
Draft TYNDP report	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Key deliverables available to external stakeholders				
Final TYNDP report										Activity periods	Activity periods	Key deliverables available to external stakeholders
Adaptation of Interlinked Model	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods
TYNDP and System Development Maps	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Key deliverables available to external stakeholders	Activity periods
Support Activities	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload
Support to TSOs with GRIPS	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload	Undetermined workload
TYNDP 2024												
Scenario development			Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods	Activity periods

* TYNDP 2022 process is subject to adaptation with the revision of the TEN-E regulation



Picture courtesy of Gaz-System

4 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 No 994/2010 in 2010. On 28 October 2017 revised Regulation No. (EU) 2017/1938 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 entered into force. The new rules ensure a regionally coordinated and common approach when choosing the security of supply (SoS) measures among EU Member States.

The regulation also defines the role of ENTSG in ensuring the security of gas supply. ENTSG 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).

4.1 OBJECTIVES

- ▲ Facilitate regional cooperation for security of supply (SoS) and operational issues.
- ▲ Within the framework of the revised SoS regulation, to facilitate the functioning of the Regional Coordination System for Gas (ReCo System for Gas) as CNOT for emergency conditions and the incidents classification scale (Art 8(3) c) Regulation (EC) No. 715/2009).
- ▲ Support the GCG and relevant stakeholders in the implementation of the revised SoS regulation and the assessment of European Security of Supply.
- ▲ Provide support to institutions and stakeholders in the provision of gas demand and supply outlooks, reviews and monitoring activities.

4.2 KEY DELIVERABLES AND ACTIVITIES

- ▲ Summer Supply Outlook 2022
- ▲ Summer Supply Review 2021
- ▲ Winter Supply Outlook 2022–2023
- ▲ Winter Supply Review 2021–2022
- ▲ 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.

4.2.1 OUTLOOKS AND REVIEWS

4.2.1.1 Summer Supply Outlook 2022 and Summer 2021 Review

ENTSOG has published its Summer Supply Outlook 2021, so that stakeholders are informed 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.

Summer Supply Outlook will assess the ability of the European gas infrastructures to provide flexibility while enabling shippers to fill storage in preparation of the winter. This report assesses the level of service provided by infrastructures considering the latest trends in supply and demand and does not intend to forecast market behaviour. As for all Supply Outlooks since 2013, EC and Member States,

through the GCG, will be able to ask ENTSOG for specific situations they would want to be assessed.

Along with its Summer Supply Outlook 2022, ENTSOG will also deliver on a voluntary basis the Summer 2020 Review: a description of the behaviour of the gas market during the summer months of 2020 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 the Research and Development activities for further improvement of ENTSOG approach for future deliverables.

4.2.1.2 Winter Supply Outlook 2022–2023 and Winter 2021–2022 Review

ENTSOG plans to publish its Winter Supply Outlook 2022–2023 in October 2022, so that stakeholders can be informed 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.

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. This report assesses the level of service provided by infrastructures considering the latest trends in supply and demand and does not intend to forecast market behaviour. As for all Supply Outlooks since

2013, EC and Member States, through the GCG, will be able to ask ENTSOG for specific situations they would want to be assessed.

Along with the Winter Supply Outlook 2022–2023, ENTSOG will also deliver on a voluntary basis the Winter 2021–2022 Review, a description of the behaviour of the gas market during the winter months of 2020–2021 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 the R&D plan for further improvement of ENTSOG approach for future deliverables.



4.2.1.3 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 Teams. Following the ReCo System for Gas common procedures, TSOs and ENTSOG will identify which TSOs will take the role of facilitators for the existing ReCo Team East, North-West and South in 2022–2023 and will undergo relevant communication exercises.

The COVID-19 pandemic in 2020 and 2021 brought new challenges to TSOs, to ensure personnel health protection, securing office spaces and dispatching centres against health risk, and exploring more advanced solutions for operating gas transmission systems (e.g., remote control, coordination between dispatching teams and back-up personnel, solutions for buildings, etc). There was also requirement to ensure supply of spare parts and materials, to maintain business continuity, guaranteeing security of gas supply to customers and adjacent TSOs.

In this regard, ENTSOG will facilitate knowledge and experience sharing amongst TSOs in the context of operational procedures in various circumstances, to ensure readiness to deal with any identified emergency conditions.

ENTSOG, in coordination with the European ReCo Teams and ENTSO-E, will facilitate strengthening of cooperation between gas and electricity TSOs in case of 'stress' events and in normal conditions.

To strengthen coordination between TSOs in normal and emergency conditions (following ACER's opinion No. 09/2019 on the adoption of ENTSOG's common network operation tools⁷), ENTSOG and TSOs will continue their work on developing an internal common technological platform for the exchange of TSOs' operational data at the European level, including defining essential parameters for communication. 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 of TSOs to critical situations.

Since 1 January 2021, the Trans Adriatic Pipeline (TAP) has been transporting gas from Turkey to EU customers. ENTSOG and EU TSOs will consider this new route of gas flows and future coordination with involved TSOs, as well as investigating development of a new ReCo Team SouthEast and potential interactions with relevant critical infrastructure operators and other stakeholders in potential crisis situations.

⁷ https://documents.acer.europa.eu/Official_documents/Acts_of_the_Agency/Opinions/Opinions/ACER%20Opinion%2009-2019%20on%20ENTSOG's%20Common%20Network%20Operation%20Tools.pdf

4.3 SUPPORTING ACTIVITIES

4.3.1 SUPPORT TO GAS COORDINATION GROUP (GCG)

- ▲ Support of the EC and the GCG in the implementation of the revised SoS regulation. Follow up on any tasks given to it by GCG.
- ▲ Through the GCG and when preparing Supply Outlooks, ENTSOG will continue to encourage Member States (MS) to feedback on particular cases of interest.
- ▲ Support the TSOs and MS in the risk assessment for the defined groups based on the results of the Union-wide simulation.
- ▲ Support the TSOs and competent authorities in the establishment of the preventive action and emergency plans, and possible new documentation about threats to business continuity including pandemic situations.
- ▲ Support the TSOs and competent authorities to agree on the technical arrangements for the application of the solidarity principles.

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

- ▲ Support Energy Community Contracting Parties and third countries transmission system operators concerning security of supply.
- ▲ Enhance technical cooperation with all the third country TSOs supplying or transiting gas to the Union. In particular, the exchange of technical and operational information in case of stress events is foreseen.
- ▲ Further support the EC in their activities in relation to the EU-Russian Energy Dialogue Work Stream 2 and 3.
- ▲ Continue to organise meetings in the framework of the External Contact Platform (ECP) in cooperation with the Energy Community Secretariat in Vienna. 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
- ▲ Support the TSOs of Member States, Energy Community and third countries in the implementation of the EU NC rules by expanding regional cooperation, via workshops or meetings organised by ENTSOG.
- ▲ Organise a workshop between EU TSOs and relevant adjacent non-EU TSOs (e.g. from North African countries, Russia, Turkey and parties acting as TSOs) supplying or transiting gas to EU in order to discuss future steps for strengthening technical cooperation.

4.4 PROGRAMME OF ACTIVITIES

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

Security of Supply	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Summer Supply Outlook 2022 & Review												
Summer Supply Outlook 2022												
Summer Review 2021												
Winter Supply Outlook 2022/23 & Review												
Winter Supply Outlook 2022/23												
Winter Review 2021/22												
Support to GCG												
Support to the EC and GCG concerning the SoS Regulation, L-gas Risk Group, regional EP, PAP and solidarity mechanisms.												
Facilitation of ReCo System for Gas												
Review and update of the ReCo System for Gas.												
Cooperation with ENTSO-E in Security of Supply												
Development of solutions for exchange of operational data between TSOs												

■ Activity periods ■ Key deliverables available to external stakeholders



Picture courtesy of GASCADE

5 ENERGY TRANSITION

The European Commission (EC) is developing new energy and climate related legislation in the context of the European Green Deal, most recently embedded in communications on the Energy System Integration and the Hydrogen strategies and the 'Fit for 55' legislative package, which will also include an update to the current gas market design.

The Energy System Integration and Hydrogen Strategies, published in July 2020, and upcoming legislative proposals within 'Fit for 55' package (publication July 2021), including the Hydrogen and Gas Market Decarbonisation package (publication December 2021) are of particular relevance and will provide guidance to which elements are important for TSOs to work on in order for gas grids to play a constructive and forward-looking role in the energy transition. From the beginning of ENTSOG's engagement in the energy transition related activities, the two core topics are:

1. Energy system integration – via cooperation with gas, hydrogen and electricity value chains
2. Decarbonisation of gas sector – via coordination with gas, hydrogen and biogas stakeholders

The EC has requested that all stakeholders actively participate in the discussions when considering the development of the proposals. Therefore, ENTSOG will have a strong focus on topics in relation to the

European Green Deal, specifically identified to feed into the discussions. This will encompass topics such as Energy System Integration, development of the Hydrogen and Gas Market Decarbonisation package, revision of the Renewable Energy Directive (RED II), future role of gas TSOs, guarantees of origin/certificates, TEN-E reopening, gas quality and hydrogen transport and handling, methane emissions, cybersecurity and regional cooperation.

On these topics, ENTSOG will consider any applicable initiatives and proposals published by the EC, ACER or other relevant stakeholders as well as liaise internally with different working groups and task forces.

In 2022, ENTSOG will continue to contribute to several legislative processes, specifically on Hydrogen and Gas Market Decarbonisation package, RED II and TEN-E Regulation and other relevant upcoming legislative files, including on methane emissions and cybersecurity.



5.1 OBJECTIVES

- ▲ Monitor key energy/climate policy and regulatory developments put forward by EU institutions.
- ▲ Develop ENTSOG's contributions to EC's legislative and policy proposals for the EU gas sector, including hydrogen, in relation to strategic projects identified by ENTSOG.
- ▲ Communicate ENTSOG's positions regarding the legislative and policy proposals developed for the EU gas sector, including hydrogen, and its integration with other energy sectors.
- ▲ Engage in dialogue with EC, ACER, industry associations, energy sector associations and other key EU stakeholders.
- ▲ Facilitate effectively and transparently the European Clean Hydrogen Alliance Roundtable on Hydrogen Transmission and Distribution based on the rules agreed with the European Commission (DG GROW and DG ENER).
- ▲ Coordinate and exchange with stakeholders along the whole value chain on how gas grids can transition via the newly created ENTSOG Advisory Panel for Future Gas Grids (CEOs of Brussels – based associations of producers and consumers from gas, hydrogen and electricity value chains).
- ▲ Ensure that stakeholders understand how gas grids can contribute to decarbonisation and the energy transition in different sectors of the EU economy.
- ▲ Assist in developing positions on measures that are needed at a national level to facilitate deployment of new 'climate oriented' TSO products and services.

5.2 KEY ACTIVITIES AND DELIVERABLES

- ▲ ENTSOG's proposals for the future regulatory framework in context of European Green Deal and 'Fit for 55' legislative package, particularly for Hydrogen and Gas Decarbonisation Package, revision of RED II and TEN-E Regulation, on methane emissions and cybersecurity.
- ▲ ENTSOG's responses to relevant public consultations and stakeholders' engagement processes – contributing with facts, figures, proposal for technical standards and solutions for market, grids and operations integrating gas, hydrogen and electricity value chains.
- ▲ ENTSOG's positions for the Copenhagen, Florence and the Madrid Fora.
- ▲ Communication of ENTSOG's views on ENTSOG's strategic projects to stakeholders (including EC).
- ▲ ENTSOG's positions on all 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 at SET PLAN Action 6 IWG on Energy Efficiency in Industry discussions.
- ▲ Participation in Prime Movers on Guarantees of Origin.
- ▲ Participation in Prime Movers on Gas Quality and Hydrogen Handling.⁸

⁸ 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.

5.3 PROGRAMME OF ACTIVITIES

The following table shows the expected timeline and key activities:

Activities	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Monitor key energy & climate policy and regulatory developments put forward by EU institutions												
Provide feedback on proposed changes to the current EU regulatory framework												
Develop ENTSOG's contributions to identified strategic projects/reports/studies												
Develop ENTSOG's positions for the 2022 Copenhagen, Florence Madrid Fora												
Communicate ENTSOG's views on strategic projects to stakeholders (including EC)												
Facilitate and support work of the Hydrogen Transmission & Distribution Roundtable of the European Clean Hydrogen Alliance												
Exchange and coordinate with stakeholders on key technical, regulatory and market relevant topics via Advisory Panel for Future Gas Grids												
Participate at SET Plan Action 6 IWG meetings and contribute to the discussions and deliverables												
Prime Mover on Gas Quality and Hydrogen Handling												
Prime Movers on Guarantees of Origin												
Provide support to ENTSOG's Members regarding the development of any new TSO products and services which can contribute towards meeting decarbonisation and EU climate neutrality targets												

■ Activity periods



Picture courtesy of Gaz-System

6 RESEARCH & DEVELOPMENT

6.1 OBJECTIVES

Regulation No 715/2009 requires that the ENTSOG Annual Work Programme contains 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.

6.2 KEY DELIVERABLES AND ACTIVITIES

6.2.1 PROMOTING TSO INNOVATIVE ACTIVITIES

In 2022, ENTSOG will continue its work to actively engage with its Members to further develop the database of TSO Research, Development and Innovation (RDI) activities using the Innovative Projects Platform (IPP), available on ENTSOG's public website. This platform includes best practices applied by EU TSOs for technology development, regulation and business models and partnerships. The purpose of this exercise is to showcase TSOs decarbonisation projects as examples of how to achieve current EU energy and climate goals of reducing GHG emissions by innovating the gas sector.

ENTSOG will work on documenting the emerging hydrogen value chain developments via updating the projects database and illustrating the technical solutions for blending and pure hydrogen possible pathways with repurposed/retrofitted gas grids.

In 2022, the website will include also further details on which projects will receive the IPCEI status and which projects will be selected for the European Clean Hydrogen Alliance pipeline of investment projects.

ENTSOG will continue to promote the IPP via its social media and other media channels.

6.2.2 VISUALISATION OF PROJECTS AND CREATION OF PROJECT DATABASE

Based on ongoing discussions at EU level about hydrogen possibilities and particularly blending, the role of TSOs in gas quality management, the questions around hydrogen readiness, ENTSOG, together with its Members will initiate the process of creating a database of ongoing and planned

projects on renewable and low-carbon gases, such as hydrogen, biomethane, syngas, blends, etc. This is undertaken with the ultimate goal of presenting the data in an interactive map that could be used by stakeholders and policy makers as the 'one stop shop' for latest 'green gases' projects information.

6.2.3 STRATEGIC ENERGY TECHNOLOGY (SET) PLAN COLLABORATION

To progress ENTSOG's R&D agenda and to share know-how and best practices, ENTSOG continues to work with stakeholders active on research and development via the SET Plan Action 6 Implementation working group (IWG) on Energy Efficiency in Industry. SET Plan includes ten key priorities – Action 6 is dedicated to "Continue efforts to make EU industry less energy intensive and more competitive".

For this purpose, an Implementation Working Group (IWG6) on Energy Efficiency in Industry was created to include representatives from Member States, industry and various European Commission DGs. In 2020 ENTSOG became a Member of this Implementation Working Group (IWG6). ENTSOG will continue to participate and provide its input to the working group in 2022.

6.2.4 HYDROGEN AND GAS QUALITY

ENTSOG will progress in assessing the tolerance for different levels of hydrogen concentration in the gas grid system, analyse the feasibility and verification of all pathways, which are hydrogen backbone, methane backbone, and hydrogen/methane blended networks. Furthermore, to support the cost-effective integration of renewable and low carbon gases such as biogas, biomethane, and hydrogen,

in the network in accordance with consumers' needs and gas quality requirements, ENTSOG 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.

6.2.5 METHANE EMISSIONS

ENTSOG will follow the development on the Methane Emissions Reduction Process in Europe and will collaborate with GIE, MARCOGAZ, GERG, and if required provide support to TSOs in the methane emissions 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 development of the EU Regulations on methane emissions reporting and abatement in 2022, ENTSOG will follow the process and will be involved to the extent needed.

6.2.6 CYBERSECURITY

In 2022, ENTSOG IT will continue with its programme to protect its information assets from potential cybersecurity attacks. This ongoing programme includes the development and implementation of policies, controls and governance that balances the need to protect ENTSOG and its members against Cybersecurity attacks with the need to run the organisation.

Additionally, ENTSOG will continue together with GIE as a partner of the joint Cyber Security Task Force its coordination and dialogue with relevant parties in the field of cybersecurity, especially regarding the work on a potential network code for the cybersecurity sector and as well closely observe the further steps regarding the implementation of the NIS Directive 2.0.

6.2.7 ONGOING ENHANCEMENT TO THE PDWS AND TP

ENTSOG owns and maintains a data repository and reporting solution (Professional Data Warehouse System, or PDWS). This solution supports the activities of the business areas. The system will be enhanced further to fulfil the needs of its users, which will include development of additional reports and automated extracts. Following the very positive feedback received from stakeholders regarding

the transparency and user-friendliness of the data visualization platform of TYNDP 2020, ENTSOG will explore the possibilities of using MS Power BI for sharing data with stakeholders.

The Transparency Platform (TP) is part of the PDWS and publishes data provided by TSOs. Further enhancement requests originating from the TP users will be assessed and developed.

6.2.8 GIS IMPLEMENTATION USING ESRI ARCGIS

As part of ENTSOG's IT R&D strategy, the GIS implementation, which commenced in 2019 will continue into 2022. ESRI ArcGIS can create and share interactive data visualisations and simplify how large volumes of data are analysed and shared. ENTSOG plans to use GIS software to develop two maps:

- ▲ A **Reference Map** which contains the topology / network model (gas transmission network), used by the TP and simulation tools.

- ▲ Some **Results Maps** which contain results from the simulation cases, based on the topology and aggregated at interconnections between countries.

These maps would be made publicly available online and stakeholders can check the results immediately after each simulation.

In the long term, GIS could be used to build an online version of other ENTSOG maps (e.g., Transmission Capacity and System Development maps).

6.2.9 PLEXOS IMPLEMENTATION FOR SIMULATIONS

ENTSOG started the process of changing its network simulation software tool in 2019 to replace the existing internally developed tool and chose PLEXOS in June 2020. This open market software offers more functionalities and better assists in the integration of the Interlinked Model between gas and electricity. The modelling development team started to integrate the existing ENTSOG model in 2020 and finalised it during 2021.

During 2022, ENTSOG plans to:

- ▲ Use Plexos to implement new functionalities for the TYNDP and PS-CBA
- ▲ Implement improvement of the ENTSOG model (e.g., interlinked with electricity and Hydrogen infrastructure).
- ▲ Use Plexos for the TYNDP2022 and its simulations.
- ▲ Use Plexos for the Summer and Winter Outlooks simulations.

6.3 PROGRAMME OF ACTIVITIES

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

Research and Development	2022											
	J	F	M	A	M	J	J	A	S	O	N	D
Promoting TSO Innovative Activities												
Visualisation of projects and creation of project database												
Strategic Energy Technology (SET) Plan collaboration												
Cybersecurity assessment												
Methane Emissions assessment												
Hydrogen and Gas Quality assessment												
Smart Grid solution & digitalisation for Gas Quality and hydrogen handling												
Ongoing Enhancement to the PDWS and TP												
GIS implementation												
PLEXOS implementation for simulations												

■ Activity periods



Picture courtesy of Gaz-System

7 ENTSG SUPPORTING ACTIVITIES

7.1 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. 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.

7.2 KEY DELIVERABLES AND ACTIVITIES

7.2.1 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 2022, 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 follow the discussions and legislative proposals shaping the future gas market reform. The Legal Team will also support the System Development team by providing legal assistance to include but not limited to the continuing development of the TYNDPs.

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 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 upon request of the European Commission 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 out of 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 provides legal assistance and advice to the management, the Board and the General Assembly in terms of governance. The Legal Team will also ensure the compliance of the Association with possible new national law applicable to companies and associations.

7.2.2 FINANCE AND HR

7.2.2.1 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.

7.2.2.2 Human Resources

ENTSOG is committed to delivering the documents foreseen by the EC Three-Year Plan for gas and to actively promoting stakeholders to pursue the targets stipulated by the Third Energy Package. But this requires a well-prepared recruitment pipeline so that ENTSOG will have the relevant resources and competences to perform the requested activities.

By the end of 2021, the ENTSOG Team in Brussels consists of forty-two persons and a replacement 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 – and therefore the organisation is under dynamic change and always ready to offer new opportunities. The ENTSOG staff consists currently of 19 different nationalities and representing 13 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 par-

ticipation in processes led by the European Commission, 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	31.12.2019	31.12.2020
General Director	1	1
Directors	4	4
Manager / Advisers	32	33
Senior Assistants	3	2
Assistants	1	2
Total	41	42

7.2.3 INFORMATION TECHNOLOGY (IT)

The ENTSG IT team provides IT support and services to the ENTSG team (i.e., management and the Business Areas), its members and other ENTSG 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 ENTSG advisors and their activities; they also provide IT support to ENTSG stakeholders in the use of ENTSG's data and systems.

The ENTSG IT systems include:

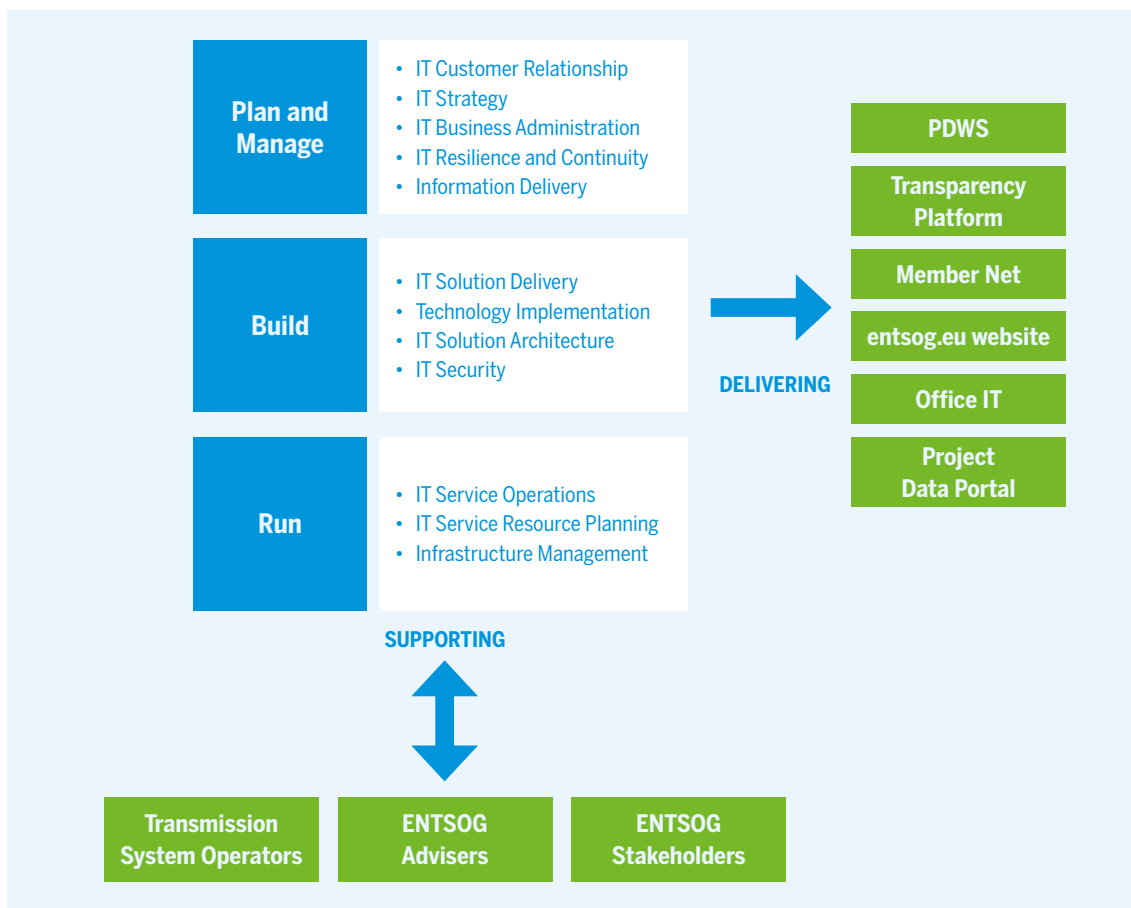
- ▲ Professional Data Warehouse (PDWS) (including a Data Portal for reporting)
- ▲ Portal for Projects Data Collection
- ▲ [Transparency Platform \(TP\)](#)
- ▲ Content Management Solution (Membernet)
- ▲ [ENTSG Website](#)
- ▲ ESRI ArcGIS solution
- ▲ Office IT – Network, Laptops, Mobile phones, Conferencing Audio-Video, etc.

Following a review of its IT systems in 2019, ENTSG will plan the replacement/upgrade of ENTSG's IT assets in the coming years to deliver secure, integrated, and cost-effective IT solutions for ENTSG. The targeted services for these upgrades in 2020 and 2021 are the TP, PDWS and ArcGIS systems:

The TP upgrade analysis commenced in 2019 and will continue in the following years with 2020 and 2021 as main delivery and 2022 as fine tuning.

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 2022.

[ESRI ArcGIS](#) software implementation, which had commenced in 2019 as part of IT R&D strategy and BI vision will continue in 2022.





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

The tasks entrusted to ENTSOG derive mainly from the following pieces of legislation:

Regulation (EC) No. 715/2009 of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005 (so-called **Gas Regulation)**

- ▲ Definition of the tasks of ENTSOG (Art. 8)
 - elaboration of network codes (NCs);
 - adoption of:
 - I. common network operation tools (CNOTs);
 - II. a non-binding Community-wide ten-year network development plan;
 - III. recommendations relating to the coordination of technical cooperation between Community and third country TSOs;
 - IV. an annual work programme;
 - V. an annual report;
 - VI. annual summer and winter supply outlooks.
- ▲ 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 Community level through ENTSOG in order to promote the completion and functioning of the internal market in natural gas and cross-border trade and to ensure the optimal management, coordinated operation and sound technical evolution of the natural gas transmission network (Art. 4);
- ▲ TSOs shall establish regional cooperation within the ENTSOG to contribute to the accomplishment of some of its tasks (Art. 12);

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)**

- ▲ For reducing the burden of reporting on market participants and to make best use of existing data sources, reporting should involve where possible ENTSOG (Recital 8);
- ▲ the obligation for reporting should be phased in, starting with transmitting fundamental data available on the transparency platforms of ENTSOG (Recital 11);
- ▲ ENTSOG shall, on behalf of market participants, 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).

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) No. 347/2013 of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009

- ▲ By 16 November 2013, ENTSOG for Gas was obliged to publish and submit to Member States, the Commission and ACER the methodology, including on network and market modelling, for a harmonised energy system-wide cost-benefit analysis at Union level for projects of common interest (Art. 11);
- ▲ It is the obligation of ENTSOG to develop and, as required, update the CBA Methodology according to Art. 11
- ▲ by 31 December 2016, both ENTSOGs were obliged to jointly submit to the Commission and ACER a consistent and interlinked electricity and gas market and network model including both electricity and gas transmission infrastructure as well as storage and LNG facilities, covering the energy infrastructure priority corridors and areas (Art. 11);
- ▲ Involvement in the process dedicated to the regional list of project of common interests (Annex III);

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 new “SOS Regulation”)

- ▲ 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 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.

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. (EC 715/2019 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).



9 ABBREVIATIONS

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

ADDITIONAL NOTE

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Publisher:	ENTSOG AISBL Avenue de Cortenbergh 100 1000 Brussels, Belgium
Cover picture:	Courtesy of bayernets GmbH
Design:	Drei Dreizehn GmbH, Berlin www.313.de



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