



ANNUAL REPORT

2018

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PRESIDENT'S FOREWORD

ENTSOG experienced a year of change in 2018 – on top of delivering on its regulatory mandate, it also moved to develop ENTSOG's views related to the future role of gas infrastructures.

The European Commission (EC) has proposed to reassess important parts of the regulatory framework for gas and has commissioned several studies on the future of the internal market – providing input to a gas package for presentation in 2020. The EC has requested stakeholders to actively participate in the discussions when considering the development of proposals for the package. ENTSOG decided to be active in this regard, facilitating the debate on the best ways for the TSOs to work on the **decarbonisation of the gas sector** and on a robust future **hybrid energy system building on both electricity and gas** as the two international energy carriers.

To support ENTSOG's work towards a decarbonised and integrated energy system, ENTSOG cooperated with numerous stakeholders and published **Position Papers** on two important topics. The Gas Quality team developed and published in September a report on a flexible approach for handling different and **varying gas qualities**. To continue and supplement this work, a Gas Quality Outlook report was included as an Annex to the TYNDP 2018 with considerations on biomethane and hydrogen potentials for the first time. In their joint position paper **"Power to Gas – A Sector Coupling Perspective"**, **ENTSO-E and ENTSOG**, called for scaling up the power conversion technologies to further explore their potential. The paper was published in advance of the Madrid Forum in October and stressed that Power to Gas, as a conversion technology, has the potential to reduce the costs of further decarbonisation of the energy system. I feel strongly

that this approach should be supported from a regulatory and technological perspective, and ENTSOG will plan its work on that basis to ensure a robust and sustainable hybrid energy system for Europe.

In 2018, work continued in recognition of the **future role of gas in a low carbon economy**. We have been working to enable a higher integration between gas and electricity markets, promoting cooperation with other sectors and analysing the business cases built on innovation: renewable gases, carbon capture and storage (CCS) and power-to-gas technology. We also cooperated with many parties on biomethane and hydrogen development, certification and tracking system.

Collaboration played a key role in ENTSOG's achievements in 2018 – ENTSOG joined efforts with ACER to successfully assess and close the issue of data exchange solutions at Virtual Trading Points and Storage Facilities, which was raised on the Network Codes Functionality Platform.

ENTSOG continued knowledge sharing with the Energy Community (EnC) throughout 2018, through participation at, and organisation of, joint EnC workshops. ENTSOG also hosted the first meeting of the External Contact Platform with non-EU Gas Transmission Companies, a forum to exchange information and views on gas transmission related activities.

“

ENTSOG also continued to work on the TYNDP scenarios, developed jointly with ENTSO-E, and this year also involved NGOs, as was seen by launching a cooperation with the Renewable Grids Initiative.

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ENTSOG also positively collaborated with the Florence School of Regulation to jointly develop an online course to describe how the EU Gas Network Codes are working, what practical implications they have to the creation of the EU internal gas market and what challenges and benefits stem from their implementation. The course was well received and very well attended, proving the need for building understanding of the existing legislative framework.

ENTSOG also continued to work on the TYNDP scenarios, developed jointly with ENTSO-E, and this year also involved NGOs, as was seen by launching a cooperation with the Renewable Grids Initiative.

The outcomes of ENTSOG's 2nd Annual Conference in December support key conclusions of the 31st Madrid Forum – TSOs innovative projects are central to the further development of the future role of gas in the energy transition. Indeed, I firmly believe that gas and **gas infrastructure is a forward-looking and innovative sector** which will play an active role right through to 2050 and beyond. ENTSOG also sees that these innovative approaches play an important part in the gas legislation review in 2020. It is my opinion that the scale of the transition towards reaching the targets of the Paris Agreement and towards climate neutrality in 2050 is a challenge, but achievable. All possible pathways to achieve the targets should be examined thoroughly and we will work closely with our Members to facilitate these structural changes in the gas infrastructure sector.



STEPHAN KAMPHUES
President, ENTSOG

GENERAL MANAGER'S FOREWORD

It was again another busy year for ENTSOG and its Members, as was reflected in the many deliverables and publications during 2018. Additional to its regulatory tasks, ENTSOG's expertise and input to the debate on future role of grids was required and delivered.

We noted much progress on the **Ten-Year Network Development Plan 2018 (TYNDP 2018)**. ENTSOG initiated the project collection process in January and, following public consultation and substantial work by ENTSOG Brussels Team and its Members, the Draft TYNDP 2018 report was published in December 2018. This report was to be submitted to ACER in early 2019 and will be published in Summer 2019. The TYNDP assessment confirms that the European gas system is well developed, has high resilience and is supporting Europe in achieving its energy and climate ambitions. However, the report also specifies some areas where investments are still needed to improve interconnections and connection to new supplies. Joint efforts by ENTSO-E and ENTSOG resulted in the publication of the **Scenario Report for TYNDP 2018**.

ENTSOG published in October the adapted version of its **2nd Cost-Benefit Analysis (CBA) Methodology** for gas infrastructure projects, which was subsequently approved by the European Commission. The previous iterations considered stakeholder feedback, to meaningfully improve the methodology, thereby strengthening ENTSOG's TYNDP and further supporting the European Commission's Project of Common Interest (PCI) selection process, ensuring improved system and project assessment and higher transparency towards stakeholders.

ENTSOG also published the **Template of Main Terms and Conditions** of TSOs' transport contracts for bundled capacity, as required by Article 20 of the Capacity Allocation Mechanisms Network Code (CAM NC).

In April 2018, ENTSOG published the **Tariff NC Implementation and Baseline for Effect Monitoring** report for 2017, the first report after the Tariff NC entered into force on 6 April 2017.

ENTSOG's efforts on ensuring **security of gas supply** in Europe also continued in 2018 and reflected the benefits of **enhanced regional cooperation**. By the end of the year the Regional Coordination System for Gas (ReCo System) was adopted as a common network operation tool (CNOT) for emergency conditions, which also included a common incident classification scale.

2018 also saw the internal restructuring of the Market Business Area within ENTSOG to form two Working Groups – one dedicated to **monitoring the implementation and effect of the gas Network Codes** as well as improving the functionality of the existing network codes, and the other to further **develop ENTSOG's positions and proposals** for Europe's future market design.

For the second year running, ENTSOG hosted its **annual conference**, titled 'Gas Infrastructure in a Sustainable Economy' to a wide group of ENTSOG stakeholders, including the European Commission and a range of electricity and gas representatives. Focusing on gas innovation, decarbonisation and the coupling of gas and electricity systems, ENTSOG Members presented their innovative projects, enabling the deep decarbonisation of industry and efficient electricity-gas grid planning and operations.



As I commence a new term as General Manager, I look forward to delivering on ENTSOG's and its Members' goals to decarbonise the gas system, by utilising the extensive infrastructure already in place in Europe.



ENTSOG also launched its **redesigned website** at the annual conference. The new improved format will better meet the needs of the users in terms of function and communication. The updated website also includes a new feature – ENTSOG's **Innovative Projects Platform**, developed to build on its Members efforts to develop innovative technologies, regulation and business models, and partnerships across the value chain. This platform allows for exchange of best practices applied by EU TSOs to support the achievement of the EU goals of reducing GHG emissions. It is planned to enhance ENTSOG's R&D activity and collaborations with external parties, including those working for hydrogen, biogas and CCS/CCU value chains.

As I commence a new term as General Manager, I look forward to delivering on ENTSOG's and its Members goals to decarbonise the gas system, by utilising the extensive infrastructure already in place in Europe, which already provides security of supply and market competitiveness. I believe the **Hybrid Energy System**, building on both electricity and gas systems as cross-border energy carriers will be able to deliver more efficient, resilient, sustainable as well as faster and cheaper **decarbonisation of the European energy sector**.

And finally, ENTSOG will continue its work as a **proactive, trusted adviser** on gas transmission related topics on European level in 2019. 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.

JAN INGWERSEN
General Manager, ENTSOG



1

ORGANISATIONAL STRUCTURE AND MEMBERSHIP



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

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

Internally, ENTSOG is divided into three business areas: Market, System Development and System Operation. These areas deal with the many activities

with which ENTSOG are tasked – the development and implementation of network codes and guidelines and assessment of current and future gas market design (Market), activities associated with scenario building and future gas infrastructure planning (System Development), cooperation for security of supply and providing transparency and technical cooperation (System Operation and System Development). The Management Support team provide legal, HR and Finance, Policy and Communication and IT support to the Brussels team.

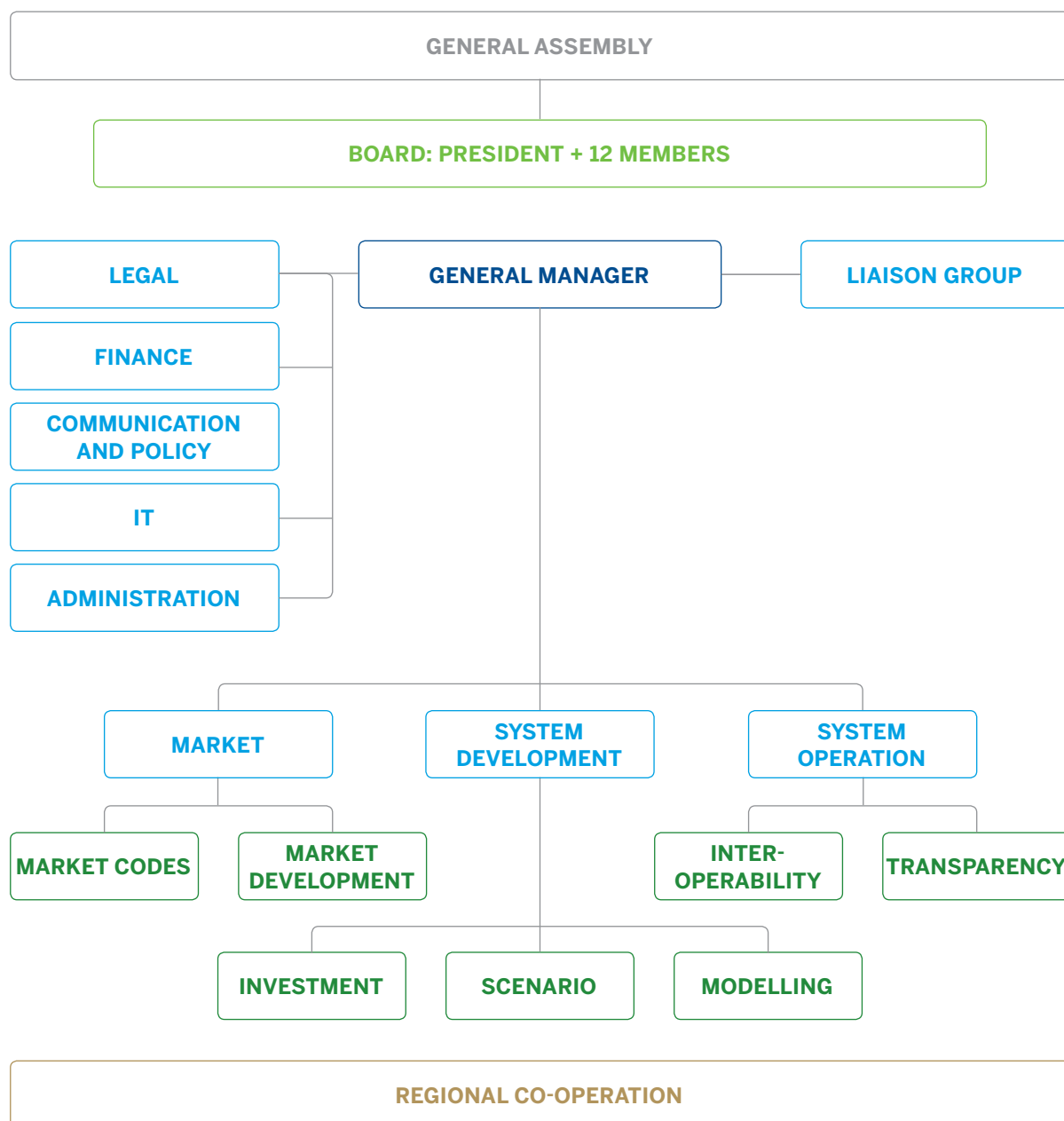


Figure 1: ENTSOG internal organisational structure (as of 31 December 2018)

ENTSOG Working Groups (WG) and Kernel Groups (KG) associated with delivering tasks assigned to the three business areas are shown in Figure 1.

A WG is the primary vehicle for the management and delivery of ENTSOG's main content outputs (e.g. TYNDP, Summer/Winter Outlooks, Network Codes, position papers, responses, etc.) before their validation at Board and approval at General Assembly level.

A KG is a more specialised group set up within a WG for the preparation of documents, proposals or for discussion of specific technical issues to prepare and facilitate the WG discussions.

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

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

The structure of ENTSOG with the embedded expertise of its members as well as that of its Brussels office will continue to play a pivotal role in the further development of the European gas markets.

ENTSOG MEMBERSHIP

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

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

As of end of **31 December 2018** is comprised of:

45 TSO Members, and 3 Associated Partners from EU countries, and 8 Observers from non-EU countries (Status as of 31 December 2018)

MEMBERS (45)

- Austria**
 - Gas Connect Austria GmbH
 - TAG GmbH
- Belgium**
 - Fluxys Belgium S. A.
- Bulgaria**
 - Bulgartransgaz EAD
- Croatia**
 - Plinacro
- Czechia**
 - NET4GAS, s.r.o.
- Denmark**
 - Energinet
- Finland**
 - Gasum Oy
- France**
 - GRTgaz
 - Teréga

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

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

ASSOCIATED PARTNERS (3)

Estonia	– Elering Gaas AS	Switzerland	– Trans Adriatic Pipeline AG (Greece, Albania, Italy)
Latvia	– Conexus Baltic Grid		

OBSERVERS (8)

Albania	– Albgaz	Switzerland	– Swissgas AG – Erdgas Ostschweiz AG
Bosnia and Herzegovina	– BH-Gas Ltd. Sarajevo	Ukraine	– UKRTRANSGAZ
North Macedonia	– GA-MA AD		
Moldova	– Moldovatrangaz		
Norway	– Gassco AS		

MEMBERS MAP

STATUS: DECEMBER 2018

45 Members

3 Associated Partners

8 Observers



German members:
see detailed map

Austrian members:
see detailed map

Swiss members:
see detailed map

Since its foundation, ENTSOG member TSOs have provided wide coverage of the European gas market. In addition, according to ENTSOG's articles of association TSOs from EU countries currently derogated from the Third Energy Package, such as two of the Baltic States, are associated partners and are able to participate in its activities.

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

AUSTRIA, GERMANY AND SWITZERLAND



2

SUMMARY OF ENTSOG'S ACTIVITIES AND DELIVERABLES IN 2018



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

ENTSOG's tasks are mainly defined in Regulation (EC) No 715/2009. This has in the past (and currently) included the development and monitoring of the implementation and effect of network codes for Market and System operation, developing the Ten-Year Network Development Plan (TYNDP), providing regular information on gas supply and demand for the European market and delivering common operational tools to ensure network security and reliability.

Looking to 2018 and beyond, ENTSOG's work is continuing to evolve: from designing the secondary legislation and fulfilment of conferred regulatory tasks listed above and monitoring the effects of the agreed

outcomes through to responding to future challenges and building on achieved results. While its focus remains on these activities, it also now includes the assessment of the progress of the functionality of the European gas markets and looking at longer term horizons for European Scenarios.

A summary of the key activities is described in the next sections. The key deliverables are shown on page 18 and page 19.

The status of the activities and deliverables which had been planned and included in the AWP2018 are provided in section Work Programme Status.

MARKET NETWORK CODES AND GUIDELINES AND MARKET DEVELOPMENT

MARKET NETWORKS CODES AND GUIDELINES

ENTSOG has developed network codes (NCs) containing rules on how to further integrate the EU gas market as well as for system operation and development. The NC development process begins when the European Commission (EC) submits a request for a Framework Guideline to the Agency for the Cooperation of Energy Regulators (ACER). Next, ENTSOG transforms the ACER Framework Guideline into a network code while conducting extensive public consultations.

Once approved through the European comitology procedure, a NC becomes legally binding for all Member States. The EC proposes not to include new items on the annual priority list for 2019 for the development of harmonised gas rules but to focus on the full and correct implementation of the existing market rules in all Member States in 2019. ENTSOG continues to monitor and analyse the implementation of NCs and the EC Guidelines and their effect. The following list outlines the timeline for publication and implementation of each of the NCs and Guidelines:

Publication	Implementation
Guidelines on Congestion Management Procedures (CMP GLs) and on Transparency	Published as Annex I to Regulation (EU) No 715/2009. Most CMP-rules implemented by October 2013
CAM NC – Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems	ENTSOG's first NC – published on 14 October 2013 as Regulation (EU) No 984/2013, implemented by November 2015 CAM NC – Amendment for Incremental capacity Regulation (EU) 2017/459, the first amendment of the NC, entering into force on 6 April 2017
BAL NC – Network Code on Gas Balancing of Transmission Networks	ENTSOG's second NC – published 26 March 2014 as Regulation (EU) No 312/2014, implemented by October 2016
INT NC – Network Code on Interoperability and Data Exchange Rules	Published on 30 April 2015 as Regulation (EU) No 703/2015, implemented by May 2016
TAR NC – Network Code on Harmonised Transmission Tariff Structures for Gas	Published on 16 March 2017 as Regulation (EU) No 460/2017, entry into force on 6 April 2017, implementation still ongoing

MARKET DEVELOPMENT

The Gas Market Design Task Force (GMD TF), established to recognise the future role of gas and gas infrastructure in a low carbon economy, changed its name to Market Development Working Group (MD WG) in 2018. The MD WG are working to enable a higher integration between gas and electricity markets, promote cooperation with other sectors such as transport and support innovation, such as renewable gases and

power-to-gas technology. This increased level of interaction will need to be assessed to ensure that the future gas market is able to respond to the requirements of the energy sector as a whole. The interaction of these sectors is necessary to meet its climate change targets. These options are being examined by the MD WG in 2018, 2019, and beyond.

SYSTEM DEVELOPMENT SCENARIOS AND INFRASTRUCTURE

After a three-year process, ENTSOG published in October the Adapted version of its 2nd Cost-Benefit Analysis (CBA) Methodology for gas infrastructure projects, which was subsequently approved by the European Commission. ENTSOG initiated the project collection process in January and, following public consultation and substantial work by ENTSOG Brussels Team and its Members, the Draft TYNDP

2018 report was published in December 2018. This report will be submitted to ACER in early 2019 and it is planned to be published in Summer 2019. Furthermore, ENTSOG supported the Regional Groups on the EC Projects of Common Interest selection process during 2018. Joint efforts by ENTSO-E and ENTSOG resulted in the publication of the Scenario Report for TYNDP 2018 in March 2018.

SECURITY OF SUPPLY AND REGIONAL COOPERATION

The Regional Coordination System for Gas (ReCo System) was adopted as a common network operation tool (CNOT) for emergency conditions by the end of 2018, including a common incident classification scale. In addition, recommendations relating to the coordination of technical cooperation between Community and third-country TSOs were adopted by

October 2018. The Summer Supply Outlook 2018 and Summer 2017 Review, Winter Supply Outlook 2018-2019 and Winter 2017-2018 review reports – which give an overview of the ability of the European network, storages and potential gas supply to meet market demand – were also published in 2018.

Picture courtesy of ontras





SYSTEM OPERATION INTEROPERABILITY AND TRANSPARENCY REQUIREMENTS

The Interoperability team undertook work in 2018 on the solution for the reported NC Functionality (FUNC) Platform issue on data exchange at Virtual Trading Points (VTPs) and storage facilities, which was subsequently published in January 2019. The Gas Quality concept paper on a flexible approach for handling different and varying gas qualities was published in June 2018 and the TYNDP 2018 Gas Quality report, published in February 2019 included biomethane and hydrogen for the first time. ENTSOG continues cooperating with CEN, Marcogaz, and other industry associations in the field of gas quality.

With respect to the work undertaken by the ENTSOG Transparency Team and the Transparency Working Group, activities in 2018 focused on improving the ENTSOG Transparency Platform, maintaining and improving the continuous provisions of transparency information required by the TAR, INT and CAM Network Codes and Transparency Guidelines and the data provision required by REMIT. Furthermore knowledge sharing with the Energy Community took place through presenting at one of the Energy Community workshops and organizing a joint workshop with the Energy Community.

ENTSOG MANAGEMENT SUPPORT

In 2018, ENTSOG's Management Support team continued working with ENTSOG teams and management in Brussels, and work with ENTSOG members. Support was via the Legal, HR, Finance, IT and Communications functions to ensure a robust platform for the activities and deliverables of ENTSOG.

In 2018, the ENTSOG Legal Team ensured the proper working of the day to day activities from the legal perspective, such as the support on the implementation of the existing network codes and in some cases effect monitoring.

The Communications and Policy Team continued to support managerial activities as well as promoting the activities of ENTSOG to its members and the external environment.

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

Working with several IT providers, vendors and IT contractors, the IT Team plans, manages, builds and operates IT systems to support ENTSOG advisors and their activities. In 2018, they provided IT support to ENTSOG stakeholders in the use of ENTSOG's data and systems.

ENTSOG DELIVERABLES 2018

JANUARY

09 // Report on differences between the main terms and conditions of bundled capacity products of existing transport contract(s)

24 // CAM NC Auction Calendar 2018_2019

MARCH

08 // Submission of data to ACER for Congestion and Market Monitoring Reports

30 // ENTSOs finalise European wide gas and electricity Scenario Report

JUNE

01 // List of projects to be included in TYNDP 2018

11 // Annual Report 2017

11 // Network Code Implementation and Effect Monitoring Reports 2017 for INT NC, CMP GL, CAM NC and BAL NC

JAN

FEB

MAR

APR

MAY

JUN

APRIL

03 // First TAR NC Implementation and Effect Monitoring report 2017

17 // Summer Supply Outlook 2018 & Summer Supply Review 2017

OCTOBER

15 // ENTSOs Position Paper – Sector Coupling: Power to Gas

18 // Winter Supply Outlook 2018/2019 and Winter Supply Review 2017/2018

23 // Adapted 2nd Cost-Benefit Analysis Methodology for gas infrastructure

26 // List of PS-CBA groups published

DECEMBER

13 // ENTSG and GIE publish new System Development Map 2017–2018

17 // CAM Network Code related 'Capacity Auction Calendar' for 2019/20

19 // Final Template of Main Terms and Conditions for bundled capacity contracts

26 // Annual Work Programme 2019

31 // Draft TYNDP 2018

JUL

AUG

SEP

OCT

NOV

DEC

JULY

10 // Template of main terms and conditions for bundled capacity contracts

26 // 2nd edition of the TAR NC Implementation Document

SEPTEMBER

05 // Position Paper – A flexible approach for handling varying gas qualities

05 // ENTSG leaflet on BAL NC

20 // ENTSG leaflet on TAR NC

WORK PROGRAMME STATUS

These tables provide an overview of the activities in ENTSOG's three main business areas – Market, System Development and System Operation. The listed tasks originate (and supplemented in some cases) from the Annual Work Programme 2018.

MARKET

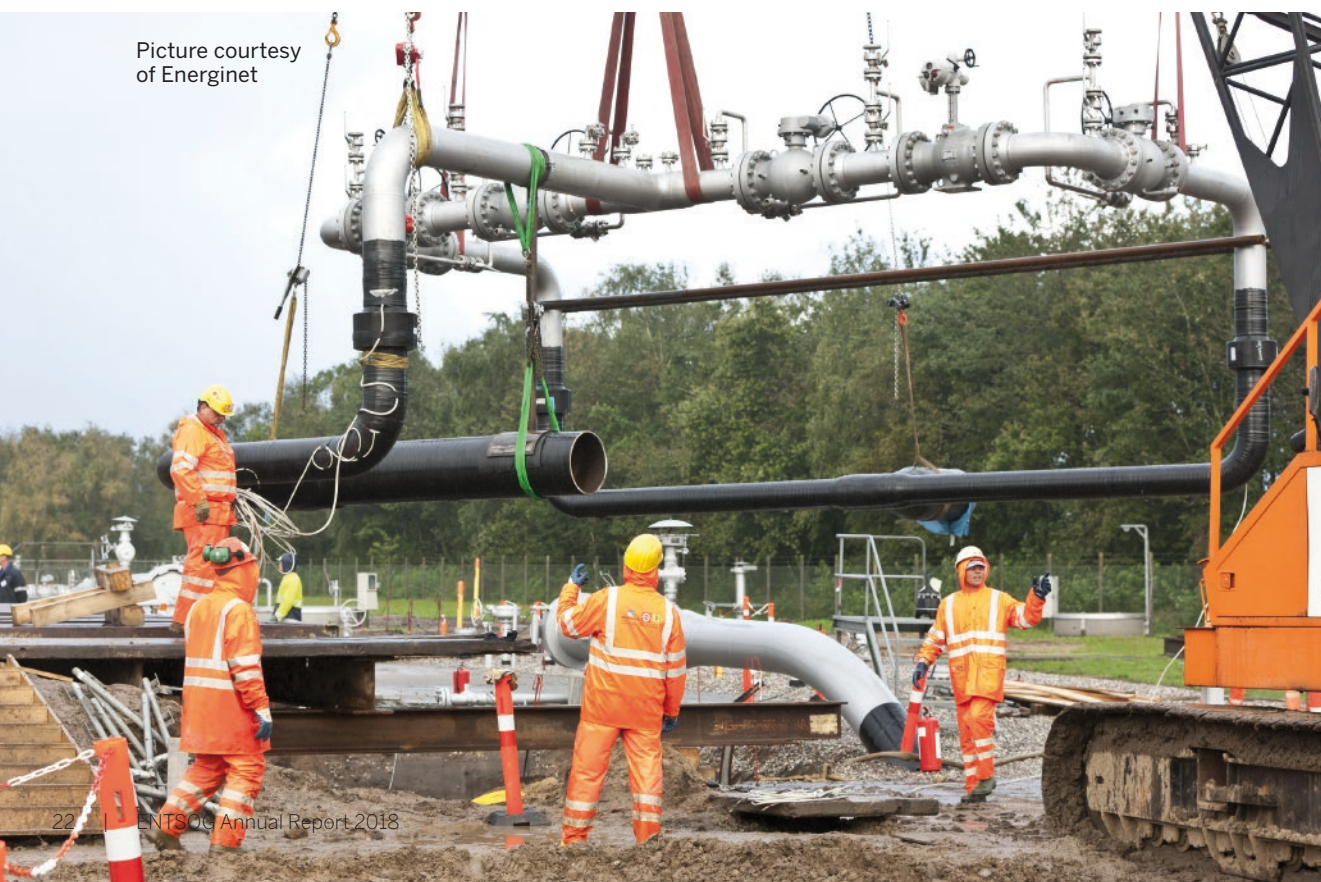
Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
MARKET DEVELOPMENT				
Develop positions and views regarding the proposals developed within the Study on Quo Vadis gas market regulatory framework	Ensure the stakeholders (including the EC) are aware of ENTSOG's positions and views regarding the proposals developed within the Quo Vadis study and respond to any consultations	Q1/Q2 2018	TSOs, EC, stakeholders	Completed
In developing the proposals above, the WG will consider the CEER report on the Future Role of Gas published in August 2017 any other relevant initiatives and proposals published by CEER, the EC or stakeholders.	Present ENTSOG's positions and proposals into the EC and CEER work on the future role of gas, at stakeholder meetings	Q4 2018	TSOs, EC, CEER, stakeholders	On-going with CEER's consultation in Q1 2019
The WG were requested to develop proposals for regulatory measures that enable the realisation of potential scenarios that meet climate change goals.	Develop positions on the regulatory measures that are needed to facilitate the output from the Scenario + initiative	Ad-hoc work stream	TSOs, Scenario WG, stakeholders	On-going
Establish ENTSOG's proposals for regulatory framework and EC work on future market design	Develop positions to areas such as Sustainability, Market model, Security of Supply, Transmission system investments, Innovation and Sector coupling	On-going throughout 2018	TSOs, EC, CEER, stakeholders, ACER, NRAs	On-going
MARKET NETWORKS CODES AND GUIDELINES				
BALANCING				
Support ENTSOG members with the implementation of the BAL NC	Successful implementation of the BAL NC provisions by ENTSOG members	Ongoing throughout 2018	TSOs	On-going
Development of ENTSOG BAL NC Implementation and Effect Monitoring report	Publish the Monitoring for BAL NC	Publication on ENTSOG website 7 June 2018	TSOs and ACER	Completed
Follow-up to ACER reports – implementation monitoring and other BAL related topics	Participate in the discussion related to the BAL NC and represent ENTSOG's position	Official ENTSOG response to ACER third monitoring report published 6 December 2018	TSOs	To be completed in 2019
Developing ENTSOG positions on balancing relevant issues including responses to public consultations	Participate in the discussion related to the BAL NC and represent ENTSOG's position	A joint ACER/ENTSOG workshop in June. A knowledge sharing session on the merge of the Baltic zones in Riga, Estonia.		Completed

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/ Comments
TARIFFS				
Support ENTSOG members with the implementation of the TAR NC	Successful implementation of the TAR NC provisions by ENTSOG members	On-going throughout 2018	TSOs	On-going
Publish the revised 2 nd edition of the IDoc	Update the second edition of IDoc to assist with the implementation of TAR NC	Updated second edition 26 July 2018	TSOs, stakeholders, ACER	Completed
Present TAR NC requirements at Baltic Knowledge Sharing Session	Participate in the Riga workshop to assist with implementation of TAR NC in Baltic region	1 June 2018	TSOs	Completed
Present current status of TAR NC implementation at ENTSOG Workshop	Participate in workshop on Network Code Implementation and Development of Gas Legislation	19 September 2018	TSOs, stakeholders, ACER	Completed
Publish the TAR NC implementation and baseline effect monitoring report	Finalise the first TAR NC monitoring report	Process was started mid-2017. Publication March 2018	TSOs, ACER	Completed
Develop ENTSOG positions on tariff related issues and respond to consultations and queries from stakeholders	Develop sound ENTSOG positions on tariff related issues that can be presented to stakeholders and the wider market	On-going throughout 2018	TSOs, stakeholders, ACER	On-going
CAPACITY				
Support ENTSOG members with the implementation of the CAM NC	Successful implementation of the CAM NC provisions by ENTSOG members	Ongoing throughout 2018	TSOs	On-going
Development of CAM NC auction calendar 2019	Publish the auction calendar for 2019	Publication on 14 December 2018	TSOs	Completed
CMP and CAM NC implementation and effect monitoring report 2017 for Annual Report 2017	Publish the Reports	Publication on ENTSOG website 7th June 2018	TSOs	Completed
Alignment of GTCs	Publish the final template on GTCs	Publication on 18 December 2018	Stakeholders, TSOs, ACER	Completed
Publication of demand assessment report initiated by TSOs on a voluntary basis (not mandatory for even-numbered years)	Publication on ENTSOG web site	26 November 2018	TSOs on a voluntary basis	Completed
CMP and CAM NC implementation and effect monitoring report 2018 for Annual Report 2018	Launch the questionnaire for CMP and CAM report to TSOs	Launched in November 2018	TSOs	On-going
Supporting activities of Energy community secretariat with implementation of CAM NC and CMP in CP countries	Implementation of CAM NC and CMP in CP countries	On-going	Energy community secretariat, TSOs and NRAs	On-going
FUNCTIONALITY				
Support the Functionality Process and any related issues to the Network Codes and Guidelines that might come up	Provide assistance to the successful establishment and operation of the Functionality Process	On-going	Stakeholders, TSOs, ACER	On-going

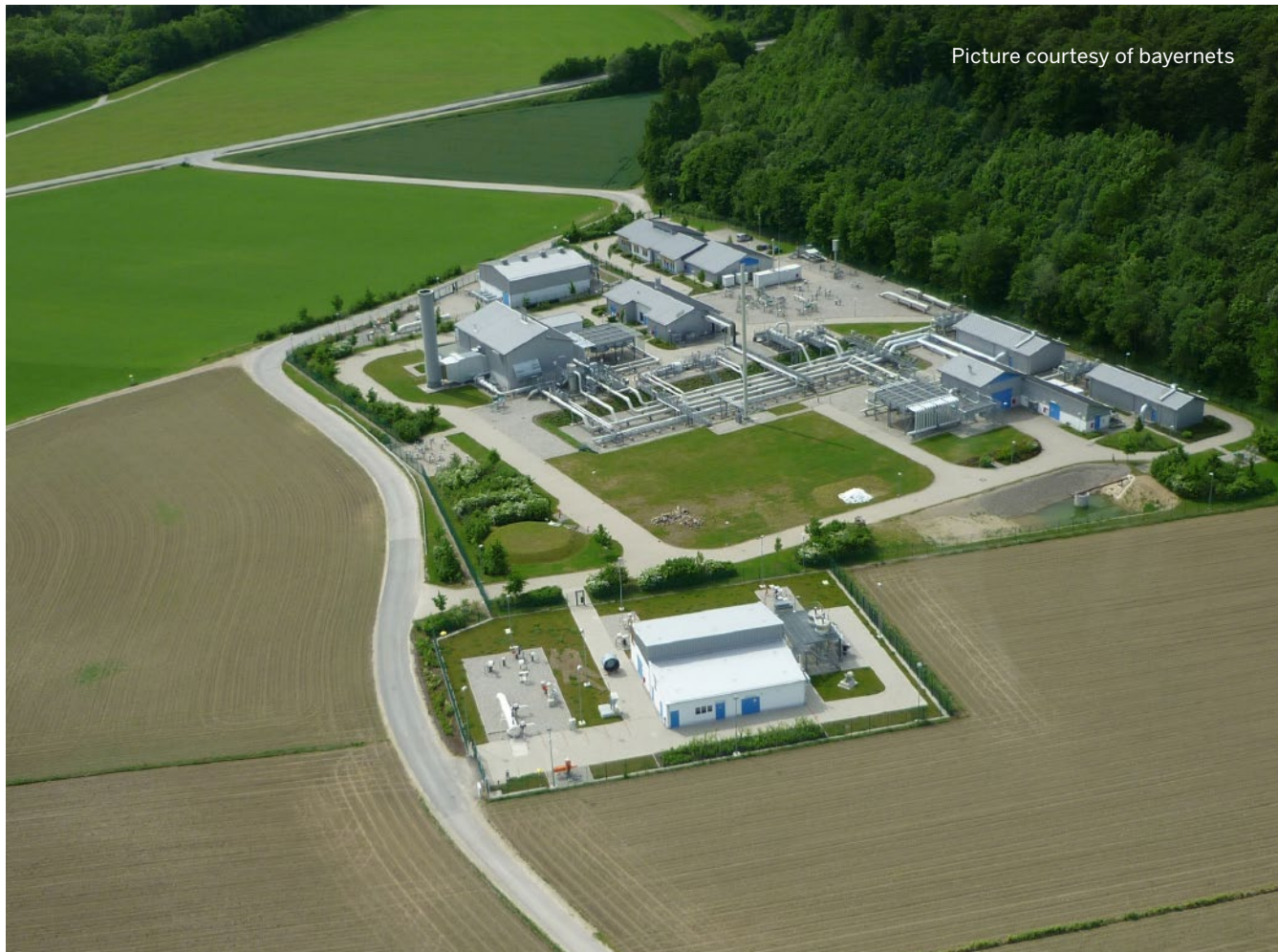
SYSTEM DEVELOPMENT

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/Comments
TYNDP 2018	Assess the infrastructure against the European Energy Policies to identify infrastructure gaps and mitigation of these gaps by projects on the basis of the CBA Methodology in force	Final TYNDP 2018 publication by summer 2019	Stakeholders, ACER Public consultation. TYNDP Presentation Day on 21 March 2019.	Draft published before end 2018. To be completed taking into account the outcome of the public consultation and the opinion received from ACER.
Support to Regional Groups	Provide technical expertise during the fourth PCI selection process. Support promoters on CBA at project level by modelling and producing Project Fiches	Contribution to the EC/ACER/ENTSOs Cooperation Platform for the 4th PCI selection process (in progress) Operationalisation of the PCI call using ENTSOG Project portal (completed) Prepare Project Fiches for the 4th PCI selection process (completed)		In progress for 4 th PCI selection process
ENTSO-E/ ENTSOG consistent and interlinked model	ENTSOs have a draft model in line with Art 11(8) of Regulation (EU) 347/2013 and adapt it further to ACER and EC opinions in view of submission for approval to EC	The ENTSOs have developed jointly the scenarios for their TYNDPs 2018, in application of their draft model.	ACER, Commission	The ENTSOs intend to adapt their consistent and interlinked model taking into account the focus study on electricity and gas project interlinkages started in 2018
TYNDP 2018 scenario development process	Joint scenario development process between both ENTSOs	Draft scenario Report published for public consultation on 2 October 2017.	Stakeholders, NRAs, Member States, ACER, Commission	Final report published in March 2018

Picture courtesy of Energinet



Activity	Goal	Deliverables & Completion Date	Consultation with	Status/Comments
TYNDP 2020 scenario development process	Joint scenario development process between both ENTSOs	Storyline workshop May 2018. Design and build Ambition Tool, a scenario tool for top-down total energy approach taking into account carbon budget.	Stakeholders, NRAs, Member States, ACER, Commission	Draft report to be published in summer 2019
2 nd CBA Methodology	Develop an updated and improved CBA methodology in line with Art 11(6) of Regulation 347	Draft CBA Methodology released on 24 July 2017	Prime Movers, all other stakeholders. Stakeholders public consultation.	ENTSO published the Adapted CBA 2.0 on 23 October 2018, which was approved by Commission on 17 January 2019
Summer Outlook 2018	Provide view on injection period ahead	Publication	ACER	Completed
Summer Review 2017	Analyse previous summer	Publication		Completed
Winter Outlook 2018/19	Provide view on supply-and-demand balance for winter ahead	Publication	ACER	Completed
Winter Review 2017/18	Analyse previous winter	Publication		Completed
TYNDP 2018 Map (periodical)	Provide overview of infrastructure projects submitted to TYNDP	Publication		December 2018
System Development Map (periodical)	Provide project map and graphic representation of supply-and-demand for past year	Publication		November 2018



Picture courtesy of bayernets

SYSTEM OPERATION

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/Comments
TRANSPARENCY				
Data consistency support to TSOs	Ensure a high data completeness and consistency on the TP	ENTSOG staff monitors the data publications daily and reports to the TSOs on a monthly basis.	Gas TSOs	Over the course of the year, data completeness has improved and is stable around 92–96 %, this is an increase of approximately 10% compared to the previous year.
Facilitate required data collection processes	Ensure timely and effective data deliveries	The data needed for ACER's monitoring obligations was delivered on 8 March 2018.	Gas TSOs, ACER Gas Market Department,	Completed
Follow-up on REMIT requirements	Ensure timely implementation of new REMIT requirements	Ongoing effort	Gas TSOs, ACER REMIT department, ACER REMIT User groups	ENTSOG and gas TSOs have participated in numerous discussions in the REMIT area in 2018, but no new requirements have needed implementation.
Analyse legal transparency requirements coming from EU legislation	Ensure timely implementation of new transparency requirements	Ongoing effort	Gas TSOs, EC, TP users and other stakeholders	On-going ENTSOG contributed to the NC Clean Up exercise initiated by EC, So far, this exercise has not resulted in any deliverables, since the European Commission has decided to not follow up on the initiative.
Cooperate with ENTSOG business areas to fulfil transparency requirements coming from relevant NCs	Ensure timely implementation of new publication requirements	Ongoing effort	Gas TSOs, other ENTSOG Working Groups, TP users and other stakeholders	On-going
Facilitate and support other areas inside ENTSOG with projects concerning TP, incl. operational map	Ensure good usage of the available data and functionalities on the TP	N/A	Gas TSOs	On-going
Stakeholder satisfaction survey on the TP	Ensure a transparent and user-friendly channel for providing feedback on using the TP	The survey responses were evaluated by ENTSOG TRAWG and presented at the 12th public Transparency workshop	Gas TSOs, TP users, ACER, EC, and other stakeholders	Completed
Public workshop on Transparency	Ensure transparent dialog with stakeholders	Workshop was held in cooperation with the Energy Community on 28 November 2018	Gas TSOs, TP users, ACER, EnC, and other stakeholders	Completed
Cooperation with Energy Community (EnC) Secretariat and contracting parties in the area of Transparency and REMIT implementation	Support the EnC in the area of Transparency and REMIT implementation	Share knowledge and support	Gas TSOs, Members of EnC	Organised the Transparency Workshop in cooperation with the EnC and presented at the EnC Energy Transparency Training Course

Activity	Goal	Deliverables & Completion Date	Consultation with	Status/Comments
INTEROPERABILITY AND DATA EXCHANGE				
Implementation monitoring	Monitoring of the implementation and functioning of the Network Code on Interoperability and Data Exchange Rules	Implementation monitoring report 2017 – published June 2018	TSOs, ACER	Next monitoring exercise planned for end 2019/beginning 2020
Gas Quality	Provide a long-term gas quality monitoring outlook	TYNDP Gas Quality Outlook report 2018 – published February 2019	TSOs, TYNDP stakeholders	Biomethane and hydrogen included for the first time
Gas Quality	Gas Quality stakeholder workshop	NC monitoring workshop – including a flexible approach for handling varying gas qualities – September 2018	TSOs and gas quality stakeholders in CEN	ENTSOG continues cooperating with CEN, Marcogaz and other industry associations in this field
SoS and Technical cooperation	Establishment of the existing ReCo System for Gas as a CNOT for emergency conditions	ReCo System as CNOT for emergencies document – including a common incident classification scale – October 2018	ACER	To be revised after receiving ACER's formal opinion
Technical cooperation	Workshop on INT NC implementation for Energy Community and with third countries	Workshop held in November 2018	EnC Secretariat and stakeholders	ENTSOG and EnC are analysing the need for a workshop in the second half of 2019
Technical cooperation	Develop Recommendations regarding technical cooperation with third countries' TSOs	Recommendations submitted to ACER – October 2018	EnC Secretariat, ACER	To be revised after receiving ACER's formal opinion
Data exchange	Management (and review) of CNOTs	Solution to the FUNC issue on DE at VTPs and UGS – January 2019 Update of CAM/CMP Business Requirements Specification and Implementation guide – April 2018	ACER, TSOs, SSOs, Market Area Managers and network users	ENTSOG have started working on updating the CNOT for nomination and matching according to the outcome of the FUNC process
Data exchange	Data Exchange workshop	Data Exchange workshop October 2018	EASEE-gas	A new edition of the data exchange workshop will be held in the second half of 2019
EIC scheme	Deliver Local Issuing Office service	On-going activity	N/A	On-going activity

3

MARKET NETWORK CODES AND GUIDELINES AND MARKET DEVELOPMENT



ENTSOG's Market Team is responsible for providing expertise, monitoring and development of the market-related network codes that promote the internal European gas market. The Market Area has also been involved with the Energy Community, providing support in their NC development and implementation.

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

The Market Development team also contributes with proposals and analysis of the impact of possible changes to the current regulatory framework for the EU gas market. Work in 2018 was undertaken to envision what innovative TSOs solutions could support the achievement of the EU goals of competitiveness, security of supply and sustainability.

WORK STRUCTURE

The work within the Market Area is organised into two main areas, the Market Codes Working Group (MC WG) and the Market Development Working Group (MD WG).

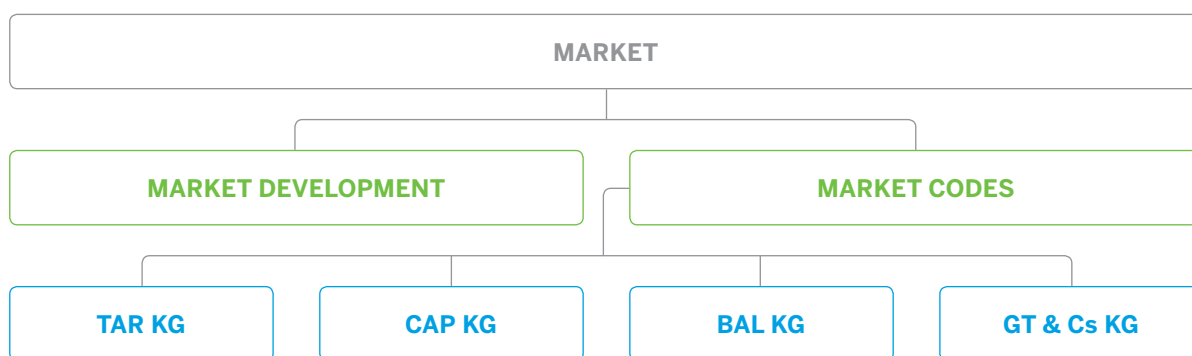


Figure 3.1: Market Codes and Market Development Working Group and associated KGs

MARKET CODES

The MC WG is responsible for ENTSOG's activities related to Balancing, Capacity and Tariffs. This includes all topics relating to the CAM NC and the Guidelines on CMP, BAL NC and TAR NC, as well as any further regulation possibly upcoming in relation with these areas.

The work within the MC WG is supported via the Kernel Groups that have more specialised tasks. In 2018, an internal restructuring of the Market Area resulted in the reorganisation of the work so that participants of the previous WGs on BAL, CAP and TAR were moved to KG level – these KGs are responsible for dedicated tasks related to their respective topics. The activities of these three BAL, CAP and TAR KGs are coordinated through the MC WG.

The work areas addressed in the Kernel Groups are as follows:

CAPACITY

The Capacity Kernel Group (CAP KG) is subordinated to the MC WG, as is shown in Figure 2. The CAP KG has been responsible for ENTSOG's activities related to the allocation of existing and incremental capacity (CAM NC – REG (EU) No 2017/459) and congestion management (Guidelines on CMP – Commission Decision of 24 August 2012 on amending Annex I to Regulation (EC) No 715/2009).



Picture courtesy of Snam

Furthermore, the CAP KG is responsible for the monitoring on CAM NC and the CMP GLs. The CAP KG develops monitoring reports to the provisions in the CAM NC and CMP GLs as well as analysis, reports and responses to ACER's implementation monitoring, where appropriate.

Besides the CAP KG, the General Terms & Conditions Kernel Group (GTC KG) was subordinated under the MC WG, created to publish the final Template of Main Terms and Conditions of TSOs' transport contracts for the offer of bundled capacity. Once this task was completed, this KG was no longer required.

BALANCING

The Balancing Kernel Group (BAL KG) is subordinated to the MC WG. It is responsible for providing expertise, monitoring and development of the Balancing Network Code (BAL NC). The BAL KG are responsible to publish the report on the implementation and the effect monitoring of BAL NC, for example.

TARIFFS

The Tariff Kernel Group (TAR KG) is subordinated to the MC WG. It is responsible for providing expertise, monitoring and development of the Tariff Network Code (TAR NC). The TAR KG contained one joint Task Force – the TAR Data Publication Task Force (TAR DP TF), hosted together with the Transparency Working Group (TRA WG).

It was responsible for providing expertise, support and proposals for the activities related to the implementation of the transparency (data publication) requirements of the TAR NC. This included the development of the standardised table for publishing tariff information directly on ENTSOs Transparency Platform and in addition assisting the TSOs with the 'early compliance' publication requirements. Due to decreasing activities during 2018, the TAR DP TF will continue in 2019 as a KG managed by TRA WG only.

MARKET DEVELOPMENT

The Gas Market Design Task Force (GMD TF) name was changed to Market Development Working Group (MD WG) in 2018. The MD WG was established primarily to contribute to the debate launched by the Study on Quo Vadis gas market regulatory framework commissioned by the European Commission. The WG is responsible for assessing external change proposals and the development of ENTSO proposals for future market design, so that these proposals can be fed into work undertaken by the EC and other organisations. In 2018, the WG continued to evaluate proposed changes to the current regulatory framework in the EU gas sector and examined innovative TSO solutions which could improve sustainability whilst maintaining security of supply and promoting competition.

ACTIVITIES

MARKET CODES

Work deriving from the MC WG included the organisation by ENTSOG of a workshop on Network Code Implementation and Development of Gas Legislation on 19 September 2018, at which TSOs and stakeholders could exchange views and measure the current status of NC implementation across Europe. ENTSOG also hosted several Knowledge Sharing Sessions in 2018, both internally between TSOs and externally between TSOs and NRAs. For example, ENTSOG shared knowledge with Baltic and Finnish TSOs at a meeting in January and a workshop in June 2018, respectively.

CAPACITY KERNEL GROUP

Capacity Allocation Mechanisms

ENTSOG prepared the annual auction calendar in 2018 for the gas year 2019/2020 and published it at the end of December 2018.

In June 2018, the Monitoring Report for 2017 for CAM NC and CMP Guidelines was published.

In Q4 of 2018 ENTSOG launched a monitoring process for CAM NC and CMP GL for 2018. This monitoring is required by Article 8(8) of the Regulation (EC) No 715/2009.

On 6 April 2017, the amendment of the CAM NC came into force where TSOs, according to Article 19(9) are required to establish functional virtual interconnection points no later than 1 November 2018, if all conditions of the provision are met. During the implementation of the provision the issue of ambiguity in Article 19(9) occurred which led to different interpretations of Article 19(9) as well as uncertainty about the implications and as a result, to different implementation approaches. The issue was posted on the Functionality Platform at the end of January 2018. ENTSOG, together with members and ACER worked on a paper with the aim to remove the ambiguity in Article 19(9) by adapting the CAM NC. In a letter addressed to ACER and ENTSOG on 6 August 2018, the European Commission stated that an amendment of Article 19(9) was not required to deduct its meaning and ensure its correct implementation.

Additionally, ENTSOG supported activities of the Energy Community (EnC) Secretariat related to implementation of CAM NC and CMP Guidelines in the Energy Community Contracting Party countries. ENTSOG experts participated at physical meetings and workshops of EnC to provide know-how and best practices to adapt from EU TSOs to EnC members, TSOs, and NRAs.

Incremental Capacity work

The first demand assessment for incremental capacity, which constituted the start of the incremental capacity process, was conducted in 2017.

According to Art. 26(1) CAM NC, after the start of the annual yearly capacity auctions, TSOs shall initiate a Demand Assessment Phase in at least each odd-numbered year.

The publication of a Demand Assessment Report is not mandatory for even-numbered years and therefore not mandatory for 2018. However, two TSOs prepared and published the Demand Assessment Report in 2018 on a voluntary basis.

The market demand assessment report (DAR) on a voluntary basis was published on the websites of the TSOs concerned (FGSZ and Plinovodi) and on ENTSOG's website in November 2018.

General Terms and Conditions for the offer of bundled capacity products

Article 20 of the Commission Regulation (EU) 2017/459, CAM NC required ENTSOG to draft 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".

As a first step in the process, ENTSOG published a catalogue of main terms and conditions, which was provided to stakeholders in May 2017 during a consultation process.

As a next step, ENTSOG analysed existing transport contracts, identifying and categorising differences in relation to these main terms and conditions and the reasons for such differences and published the findings in the Report on 5 January 2018.

Subsequently, ENTSOG developed a consultation on the Template covering contractual provisions "which were not affected by fundamental differences in principles of national law or jurisprudence". The public consultation feedback was considered when preparing the Template; subsequently it was submitted to ACER for Opinion. ACER's feedback was then taken into consideration for the final version of the Template.

The final Template of main terms and conditions was published on 18 December 2018.

BALANCING KERNEL GROUP

The Balancing Network Code (Commission Regulation (EU) No 312/2014) was published in the Official Journal of the EU in March 2014 with a first implementation deadline as of 1 October 2015, a second implementation deadline for countries which apply for interim measures on 1 October 2016 and a third deadline for countries which apply for interim measures April 2019.

During 2018, the BAL KG focussed on the implementation requirements set out in the BAL NC.

Following its monitoring obligation set out in Article 8(8) of the Regulation (EC) No 715/2009 and to assess the implementation plans of the individual TSOs, ENTSOG produced its third BAL NC monitoring report, in which the implementation status of the BAL NC by 1 October 2017 was identified and its second effect monitoring report.

The ENTSOG Report on BAL Monitoring was published in June 2018.

In conjunction with ACER, ENTSOG held one workshop on the 12 of June, where specific issues were discussed on Balancing such as non-daily metered forecast and the accuracy and frequency of information provision.

TARIFF KERNEL GROUP

The TAR NC entered into force on 6 April 2017. The primary focus and workload of the TAR WG, redefined as a KG during 2018, was to continue supporting ENTSOG members with the implementation of the TAR NC during 2018.

The TAR KG published a revised version of the second edition of the TAR NC Implementation Document (TAR IDoc) on 26 July 2018. The TAR IDoc is a non-binding document, prepared for information and illustrative purposes, and offers a set of examples and possible solutions for the implementation of the TAR NC throughout the EU. This revised second edition provides editorial changes and an update to the ex-post discounts section.

The purpose of publishing the second edition of the IDoc was to present the prevailing status of the implementation of the TAR NC, since two implementation deadlines in the code had already passed in 2017, and before the last major implementation deadline on 31 May 2019. ACER and stakeholders were also invited to present their views.

In March 2018, the TAR KG finalised and published the TAR NC Implementation and Baseline Effect Monitoring report 2017, which provides the status of the implementation of the TAR NC by the TSOs and constitutes a baseline study of the effects of the TAR NC on the European gas market. The TAR KG had started working on the report in 2017, establishing the scope of the implementation monitoring part of the report and developing the relevant indicators for the effect monitoring part of the report. The required data was analysed and work on the report ended in the first quarter of 2018. As per Article 36(1)(a) of the TAR NC, the report was submitted by 31 March 2018 to ACER.

The TAR KG cooperated with other KGs and WGs, for example with the CAP KG on tariff issues related to incremental capacity, and with the TRA WG, through the TAR DP TF, on the implementation of the transparency (data publication) requirements of the TAR NC. In 2018, the Task Force continued to provide assistance to ENTSOG members to implement the publication requirements of the TAR NC

The TAR KG supported the ongoing Functionality Process. In addition, the TAR KG has been working on the implementation of the TAR NC with the Energy Community and their Contracting Parties, including contributions to the Gas Working Group meetings, Transparency Workshop and providing advice on training for their NRAs. Throughout 2018, the TAR KG also responded to consultations and queries from stakeholders and developed ENTSOG positions on tariff-related issues to ensure ENTSOG's work and views are appropriately presented externally. Ad-hoc meetings were also organised to help specific Member States to implement the TAR NC.

The TAR Brussels team was also involved in discussions with ACER regarding the revenue report prepared by consultancy ECA for ACER, in accordance with TAR NC provisions. The TAR Brussels team attended workshops organised by ACER and represented TSOs and ENTSOG positions.

The TAR Brussels team was also a participant at the Informal Member State meeting hosted by the EC in June 2018, at which stakes and issues in the gas sector were debated. It also attended other workshops organised by other external stakeholders.

JOINT NETWORK CODE FUNCTIONALITY PROCESS

The established Joint 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 Network Codes and Guidelines. It provides stakeholders a possibility to raise and discuss issues as well as an opportunity to be involved in developing solutions, which aim at commonly recommended non-binding guidance.

No	Posting party	Description	Next steps
1	Equinor & 3 others	Communication protocol encryption	Issue closed post resolution
2	Easee-Gas	Gas Role model	Issue closed post resolution
3	ERU	Tariff methodology	Issue withdrawn by user
4	GTS	CAM NC text ambiguity in VIPs creation	Issue closed post resolution
5	EFET	Ex-post interruptible cap. discounts	Issue closed post resolution
6	GMT	Fallback solution for failed DA auctions	Issue closed post resolution
7	GMT	Data Reliability	Issue closed post resolution
8	EnC/UTG	INT NC on IPs 3 rd	Issue closed post resolution
9	Easee-Gas	One invoicing format in DE	Issue closed post resolution
10	EFET	Inconsistencies in publication of reserve price information	Develop response

The Gas Network Codes Functionality Platform (www.gasncfunc.eu) enables stakeholders to raise implementation and operation issues via the web interface and gives an overview of all reported issues and their status. Since its introduction in 2016, the perceived limited scope – only NC implementation, functional or operational issues could have been raised on the platform- was outlined as a potential barrier to submission of network code related issues. Therefore, in the Summer of 2017, in conjunction with ACER, the Functionality Process underwent scope broadening allowing any issue related to the network codes to be included. In addition, the number of potential network codes and guidelines was also expanded to include the Transparency Guidelines and the TAR NC.

In July 2018, the first issue solution was published on the Functionality Platform, related to Ex-post interruptible capacity discounts. The table above outlines the status of the issues which have been posted on the platform to date.

From the first stakeholder issue on the platform at the end of 2017 until the publication of the first issue solution in July 2018, improvement suggestions to the platform and process were analysed by ACER and ENTSOG and transformed into project steps, with the aim of making the Functionality Process more efficient, transparent and smoother for the involved stakeholders. This project will continue in 2019.

MARKET DEVELOPMENT

The MD WG's primary focus and workload throughout 2018 was developing positions and views regarding the proposals developed within the Study on Quo Vadis gas market regulatory framework, Council of European Energy Regulators' (CEER) Future Role of Gas report and TSOs solutions to moving to a decarbonised energy system.

The Quo Vadis and CEER's Future Role of Gas studies were analysed by the MD WG and ENTSOG positions developed in relation to the proposals within the studies. These positions were then communicated to stakeholders (including the EC) to make sure that they were aware of ENTSOG views. The WG responded to all consultations that were launched.

In the second half of 2018 the WG commenced discussions on innovations that can contribute towards TSOs drive to decarbonise the energy system. These discussions focussed on technologies, business models and future market design that can help achieve the required results. The outcome of these discussions will form the basis of position papers that will be developed in early 2019. The positions papers will be fed into work undertaken by the EC and the Madrid Forum workstreams on Carbon Capture Storage/Carbon Capture and Utilisation (CCS/CCU), Certificates and Guarantees of Origin and Cross sectoral Flexibility Measures, an EC Sector Coupling study.

NETWORK CODE IMPLEMENTATION AND EFFECT MONITORING

ENTSOG is required to publish monitoring reports, on implementation as well as on effects of the CAM NC.

CAM NETWORK CODE IMPLEMENTATION MONITORING

The implementation of the CAM NC is an important step towards the harmonisation and development of an integrated energy market within the European Union. Network Users can access and operate within this market more easily than in a multitude of separate national markets with different rules and regulations for network access and capacity allocation. In the European Union, standard procedures for capacity allocation as unified capacity auctions for capacity products are offered on no more than one common booking platform per Interconnection Point (IP). Moreover, capacity products have been harmonised by bundling capacity contracts to enable the Network Users to book standard capacity products which consist of corresponding entry and exit capacity at both sides of every IP.

An assessment of the implementation monitoring in 2018 of the CAM NC by TSOs has been undertaken by ENTSOG and a summary of the results are outlined below.

This is the fourth Implementation Monitoring performed by ENTSOG to assess covering the calendar year 2018. It reflects the status of implementation of 43 European Transmission System Operators (TSOs). The presented data were collected from 46 TSOs. This report reflects the responses from 41 ENTSOG members¹⁾, 2 associated partners and 3 TSOs that are not ENTSOG members. Three out of the 41 ENTSOG members are under derogation, therefore they were excluded from the scope of this monitoring exercise. Three TSOs (Baltic states) applied the implicit capacity allocation method undertaken in 2017. Where the implicit capacity allocation method is applied, national regulatory authorities may decide not to apply Articles 8 to 37 of the CAM NC, according to Article 2(5). Almost the same questionnaire was used as in the previous years so that it could be possible to monitor which

TSOs had implemented which specific Articles in the years between 2015 and 2018.

The analysis for the report were focussed on the implementation status of provisions which were not implemented in the last year's report and on provisions entered into force in 2018.

As the Articles of Chapter II "Principles of cooperation" and Chapter III "Allocation of firm capacity products" of the CAM NC are fully implemented, the main focus of this report was to analyse the implementation status of Chapter IV "Bundling of capacity at IPs" and Chapter VI "Interruptible Capacity".

The monitoring report 2018 concludes that there has been further progress made towards the implementation of CAM provisions in comparison to the 2017 monitoring report. Almost all TSOs are maximising their available bundled capacity and enabling network users to nominate via a single nomination procedure. Despite the ambiguity regarding the implementation of VIPs, more than half of the affected TSOs are offering this service as of 1st November 2018 and in some cases before. All other affected TSOs are ready for VIP implementation and will do so during 2019 and 2020. This is an important step forward in facilitating gas transport and gas trading across the EU. The capacity conversion service is also in place across the EU but has only been requested a limited number of times by network user. A clear majority of the TSOs fulfil the Chapter VI "Interruptible Capacity" provisions of the CAM NC and primarily offer firm capacity before interruptible.

1) ENTSOG has 44 members, three have no interconnections point in their network and are therefore excluded from CAM Implementation monitoring



CAM NETWORK CODE EFFECT MONITORING

ENTSOG launched the third annual effect monitoring process in December 2018 to assess the progress of effect monitoring in the gas year 2017/2018. ENTSOG's focus has been to identify to which extent the main aims of the CAM NC have been achieved. A summary of the results is outlined below.

ENTSOG used three indicators for effect monitoring, these indicators have been used since the first report in 2016 and haven't changed since then. ENTSOG wishes to build historical data using these indicators to show the market development in the future.

The data used for this report was requested from the booking platforms used by TSOs for capacity allocation during gas year 2017/2018. Data from all used BPs has been added to this report, including where a TSO used more than one BP.

EFFECT MONITORING INDICATORS AND THEIR RESULTS

CAM.1: Share of bundled capacity to sold capacity

This indicator shows the ratio of allocated bundled capacity relative to the total firm capacity sold. The indicator is calculated per standard capacity product type (yearly, quarterly, monthly and daily firm capacity products) of all TSOs.

The ratio of bundled capacity to total capacity booked for monthly products was the highest at 64% of overall sold capacity. As compared to last year the ratio shows an increase of 9 percentage points. The highest increase with 11 percentage points as from last year is in the daily bookings where we have a ratio of 31%. Looking at the overall trend from 2015/2016 to 2017/2018 there is an increase of the bundled capacity share over the yearly and quarterly capacity sales. However, as compared to last year we can see a decrease of the bundled capacity share over the yearly and quarterly capacity sales. The ratio of bundled capacity to total firm capacity booked for yearly products is 62% which is 13 percentage points less than last year. This trend was caused by the exceptional long-term bookings in the annual yearly capacity auction in March 2017 in Germany, Czech Republic and Slovakia. Excluding this amount of bookings from last years' data basis would lead to a ratio of approximately 55%. Considering this, there would have been an increase of the ratio of 7 percentage points.

CAM.2: Share of bundled capacity to unbundled capacity

The share of bundled capacity reallocated due to secondary market trades is marginal at less than 1%. This is caused by the historical dominance of unbundled capacity.



Picture courtesy of Gasum

CAM.3: Increase of market participants

The indicator shows an important increase of both parameters “all participants” and “active participants” in the European booking platforms PRISMA, GSA Platform and the Regional Booking Platform (RBP). The parameter “active participants” is defined as network users who bid on any of the capacity auctions during the gas year 2017/2018 while “all participants” include the “active participants” and those who registered but not necessarily bid on any auction.

- ▲ Number of all participants: this indicator has continuously increased from the gas year 2014/2015 to the gas year 2017/2018. There were 855 new network users registered at European booking platforms in comparison to the previous year. This means an increase of 33.58 % in one year.
- ▲ Number of active participants: this indicator has also continuously increased from the gas year 2014/2015 to the gas year 2017/2018. There were 834 new network users active at the European market in comparison to the previous year. This means an increase of 93.29 % in one year.

CMP GUIDELINES IMPLEMENTATION MONITORING

ENTSOG launched its annual implementation monitoring exercise for CMP Guidelines in December 2018. The results are summarised below. This is the fourth monitoring exercise for the CMP Guidelines.

Almost all ENTSOG members have already fully implemented the CMP GL. Only three TSOs were still in the process of implementing some of the CMP measures by end of 2018. One of these two TSOs is planning to

implement all CMP measures before the end of the year 2019 after receiving NRA approval. For the other TSO, the decision of the NRA is also still pending. The third TSO which holds derogation under Article 49 of the Gas Directive in the previous years' assessment is in a process of creating a single balancing zone with the adjacent TSO and is expecting to implement all CMP measures after creation of the balancing zone merger.

CMP GUIDELINES EFFECT MONITORING

ENTSOG launched the annual effect monitoring process in December 2018. Regarding effect monitoring, ENTSOG's particular focus has been to identify to which extent the main aims of the guidelines have been achieved.

To measure the effects of the CMP Guidelines on the European market, ENTSOG used two indicators that show the impact of the mechanisms.

To monitor the effects of the congestion management procedures, the questionnaire was addressed to all IPs rated as "congested" by ACER in its annual contractual congestion report, published on 31 May 2018.

EFFECT MONITORING INDICATORS AND THEIR RESULTS

CMP.1: Additional capacity volumes made available through each CMP

As shown, Firm Day-Ahead Use-It-Or-Lose-It (FDA UIOLI) and Oversubscription and Buy-Back (OS & BB) are the two CMP mechanisms that released capacity at congested IPs while the Long-term Use-It-Or-Lose-It (LT UIOLI) mechanism and Surrender of Capacity does not provide any additional capacity at congested IP sides to the market for the observed period.

Indicator 2 (CMP.2): Share of capacity reallocated through CMP relative to total capacity reallocated

The chosen indicator compares the allocation of additional capacity through CMP mechanisms with the allocation of the total additional capacity (additional capacity allocated from that offered through CMP mechanism + additional capacity allocated from offered capacity in the secondary market).

The analysis showed that both means of re-offering unused capacity via CMP mechanisms and the secondary market have been established in Europe.

22 % of the capacity being offered through CMPs at congested IPs is allocated. However, bilateral agreements between Network Users (secondary market) is the preferred solution for trading unused capacity.

It is worth noting the importance of the secondary market in offering additional capacity. Almost 93 % of the total amount of reoffered capacity is traded on the secondary market. However, from the total amount of allocated capacity that is re-offered, 80 % of it is allocated to other network users on the secondary market.

To conclude, the assessment in 2018 shows that the current ways of offering additional capacity through existing CMP mechanisms allow Network Users to access markets in situations where IPs are contractually congested. Furthermore, the current situation in the European gas market shows that, of the total amount of additional capacity offered through CMP mechanisms, around 22 % is reallocated to the market. This means that contractual congestion situations are in general not limiting market access to other Network Users who do not hold capacity at the relevant IPs. Otherwise, the demand for additional capacity and reallocated amounts would be much higher. The secondary market is an important tool for trading unused capacity between network users and thus significantly helps to ease market access at congested IPs. It can therefore be considered to be a widely accepted alternative to CMP mechanisms by Network Users.

$$CMP\ 2 = \frac{ACMP}{(ACMP + ASM)} \times 100 = 1.95\ %$$

	OS+BB	FDA UIOLI	SURRENDER	LT UIOLI
Additional Capacity Offered	184.65 MWh/h/y	694.80 MWh/h/y	-	-
(Re)allocated Capacity	51.00 MWh/h/y	142.48 MWh/h/y	-	-
Ratio	27.62 %	20.51 %	-	-

4

SYSTEM DEVELOPMENT SCENARIOS AND INFRASTRUCTURE



The System Development business area covers ENTSOG activities related to scenario development, investment planning and infrastructure assessment for the EU energy system. The main deliverables are short and medium to long-term assessments such as the Ten-Year Network Development Plan (TYNDP) and Supply Outlooks. In 2018, the System Development area published the draft TYNDP 2018 and the joint ENTSOs Scenario Report for TYNDP 2018. In addition, the ENTSOG maps show commitment to transparency and to providing stakeholders with easily accessible and high added value information. The joint ENTSOG/GIE System Development map was published in 2018 and work to prepare the ENTSOG TYNDP 2018 map was undertaken during the year.

WORK STRUCTURE

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

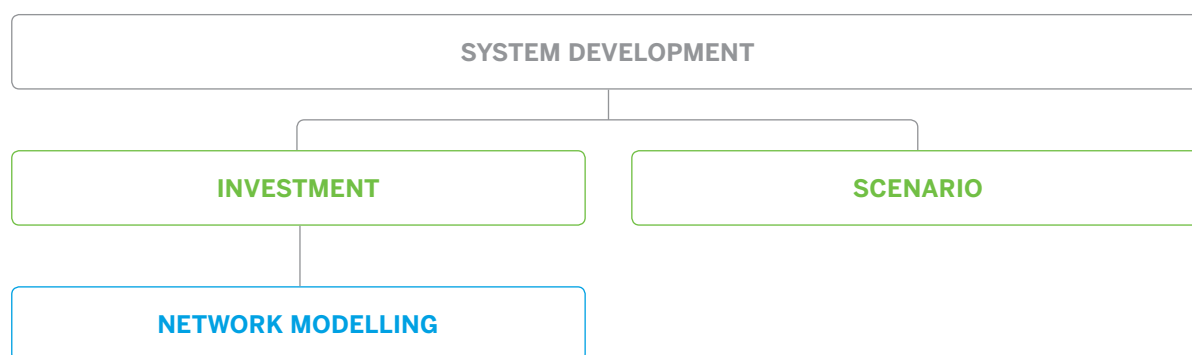


Figure 4.1: Investment and Scenarios Working Groups and associated KG

INVESTMENT

The Investment Working Group (INV WG) is responsible for developing regulatory deliverables: the Union-wide Ten-Year Network Development Plan (TYNDP), the Winter and Summer Outlooks and the implement the Cost-Benefit Analysis (CBA) methodology. It is also responsible for non-regulatory deliverables Winter and Summer reviews, the Transmission Capacity Map and the System Development Map de-

veloped in collaboration with Gas Infrastructure Europe. The Working Groups (WGs) are supported in their mission by the NeMo Kernel Group (NeMo KG), which was established to develop and enhance ENTSOG's modelling tool and perform the simulations for ENTSOG deliverables in accordance with defined Scenarios for TYNDP.

SCENARIOS

The Scenarios Working Group (SCN WG) is responsible for developing the supply and demand scenarios for ENTSOG deliverables based on analysis of current situation and potential future trends. This SCN WG has

been supported by the ENTSOs joint Scenario Building Working Group, gathering experts from both electricity and gas TSOs, and tasked with developing joint scenarios for the electricity and gas TYNDPs.



ACTIVITIES

INVESTMENT

The INV WG were involved in several activities in 2018. These are listed in the following sections.

UNION-WIDE TEN-YEAR NETWORK DEVELOPMENT PLAN 2018

In December 2018 ENTSOG published the Draft TYNDP 2018. Following the contribution received from stakeholders and taking on board the recommendations of the ACER Opinion, ENTSOG will publish the Final TYNDP 2018 Report before summer 2019.

TYNDP looks at the next twenty years. It assesses the European supply adequacy and the resilience of the system. It identifies if and where investment gaps remain, and how submitted projects mitigate these gaps.

TYNDP 2018 confirms that the current gas infrastructure is close to achieving the infrastructure-related aims of the internal gas market. The gas network is highly interconnected across most of Europe. In the specific areas where persistent long-term investment needs are identified, the necessary projects are included in the TYNDP and their commissioning timeline and potential benefits are presented in the report.

ENTSOG is committed to the continual improvement of the TYNDP and has taken the feedback received from both ACER and the stakeholders and incorporated elements that could be addressed in the final TYNDP publication. There will be a feedback section, and the report includes annexes with information on the methodology, the projects, the TYNDP map, the Gas Quality Outlook. Feedback will be taken into consideration in future editions of the TYNDP.

SEASONAL SUPPLY OUTLOOKS AND REVIEWS

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

Summer Supply Outlook focuses on the ability of the gas infrastructure to allow market participants to reach high storage levels at the end of the summer gas season based on the actual storage levels at the beginning of the injection time horizon. The analysis is completed using sensitivities targeting different stock levels under different supply situations.

Summer Supply Outlook 2018 identified the European Gas network as sufficiently robust to enable enough stock level in preparation for the winter and flexibility for the supply strategy of the network users.

Winter Supply Outlook explores the evolution of the underground storage inventories across the winter gas season while ensuring the supply-and-demand balance during specific high-demand situations. The robustness of the report is complemented by a sensitivity analysis on the different climatic profiles of the winter. The resilience to potential transit disruptions through Ukraine was assessed.

The results of the 2018 analysis indicate that the European gas system offers enough flexibility across the winter season in Europe, even in the case of high demand during an extremely cold winter. One of the report's key findings is that shippers could ensure flexibility by further injecting into storages to support an adequate storage level as per October of each year.

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

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

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

TYNDP 2018 MAP AND SYSTEM DEVELOPMENT MAP

The NeMo KG were involved in the work to publish two maps in 2018 – the System Development Map and the TYNDP 2018 map. ENTSOG publishes the System Development Map (in collaboration with GIE) on an annual basis, which focuses on supply and demand trends. The 2017/18 edition was published in November 2018.

The TYNDP 2018 map, published in December 2018, provides an overview of the existing infrastructure and the infrastructure projects submitted by promoters to TYNDP 2018.

The team also worked on assessing how Network Modelling simulation results could be shown on an interactive online map and the mapping data could be used by implementing GIS. It is also anticipated that data used in future editions of the Summer/Winter Outlook/Reviews could be presented using the GIS software.



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. Currently, the Interlinked Model is with the Commission for their formal opinion.

Starting with TYNDP 2018 the ENTSOs have implemented the joint scenario building process, which covers the most substantial part of the draft Interlinked Model, and will continue to do so in the subsequent TYNDP editions.

The ENTSOs acknowledge that ACER's opinion points out additional potential interlinkages. The ENTSOs contracted a consultant in 2018 to perform a focus study, to investigate further possible interlinks and their relevance to infrastructure development. After the kick-off workshop in May 2018, a prime-movers group of stakeholders has been created to follow and provide feedback on the study. A first webinar took place on 10 October.

The ENTSOs will build on the outcomes of the study to prepare the adapted version of their Interlinked Model for EC approval in view of implementation in future TYNDPs.

THE ADAPTED COST-BENEFIT ANALYSIS (CBA) METHODOLOGY 2.0

The first CBA methodology was approved by Commission in 2015. It was applied to develop TYNDP 2015 and TYNDP 2017, and therefore supported the 2nd and 3rd PCI selection process.

Consequently, ENTSOG developed the adapted CBA methodology 2.0, in line with Article 11(6) of Regulation (EU) 347/2013. After meetings and public consultations with stakeholders and institutions, ENTSOG published a draft 2nd CBA Methodology on 24 July 2017, and submitted it to ACER and EC for their Opinions. Considering the ACER opinion received on 24 October 2017 and the draft recommendation from the EC Gas CBA study carried out by Florence School of Regulation and Deloitte undertaken for EC and published on 10 March 2017, ENTSOG developed the Adapted CBA Methodology 2.0. Commission issued its Opinion on 16 October 2018. ENTSOG published the Adapted CBA 2.0 on 23 October 2018, which was approved by Commission on 17 January 2019. The Adapted CBA methodology 2.0 was implemented for the first time in TYNDP 2018.

SUPPORT TO REGIONAL GROUPS FOR THE 4TH PCI SELECTION PROCESS

ENTSOG has brought its constant support to the Regional Groups in the fourth process of selecting projects of common interest (PCI).

ENTSOG actively engaged, throughout 2018 in the PCI Cooperation Platform activities and in providing its technical support to the Regional Groups, in particular through its technical contribution to the activities of the Cooperation Platform, composed of the Commission, ACER and the ENTSOs and meant at streamlining the work of Regional Groups. Although the intensity of those activities had not been anticipated in the annual work programme. The TYNDP plays a key role in the PCI selection process initiated by the European Commission.

ENTSOG has provided further support to the PCI selection process. It has closely cooperated with the European Commission in configuring and offering its technical platform – the ENTSOG Project Portal – to perform the call for PCI projects. And additionally, upon formal invitation by the European Commission, and under the mandate of project promoters, ENTSOG handled and delivered to PCI candidate projects' promoters the Project Fiches that present project-specific CBAs of PCI candidates. ENTSOG also provided technical support to all promoters in the submission of their projects to the European Commission and the Regional Groups.

SUPPORT TO GAS COORDINATION GROUP

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

The role of the Gas Coordination Group (GCG) is to exchange information and best practices, and to facilitate Security of Supply (SoS) standards and to support supply-and-demand balance especially in case of critical situations. Members include the European Commission, representatives of EU Member States, ENTSOG, and other international organisations as well as the industry.

In 2018, ENTSOG supported this group by coordinating TSO expertise with respect to assessing the gas infrastructure, especially through modelling analyses. Publication of the Seasonal Outlooks continue to support the Gas Coordination Group on a more regular basis.



SCENARIOS

ENTSO-E/ENTSOG JOINT TYNDP SCENARIO REPORT

To deliver the consistent and interlinked model, ENTSOG and ENTSO-E, jointly developed a common set of scenarios in 2018, building on their combined expertise and modelling capabilities as well as on the input received from dozens of stakeholders from the industry, NGOs, National Regulatory Authorities and Member States. This co-development approach results in a set of ambitious, technically robust and equally realistic scenarios. The joint scenarios outline the quantification of three markedly different storylines, possible paths towards a low-carbon energy system in line with EU targets.

Scenario building is the very first step in developing TYNDP. After the Final TYNDP 2018 Scenario Report

was published in March 2018, the Scenario work for TYNDP 2020 started. Following the same process as TYNDP 2018 ENTSOG has continued its close cooperation with ENTSO-E.

To further improve their joint scenarios, ENTSOG and ENTSO-E have decided to develop two top-down all-energy scenarios in addition to a bottom-up scenario for their TYNDP 2020 Scenarios. All-energy scenarios will ensure a deeper assessment of sectoral interlinkages, fuel switches and the monitoring of all GHG emissions. Furthermore, ENTSOs will assess the decarbonisation pathway in line with the climate targets of the Paris agreement by considering a carbon budget as stated in the latest Special Report of the Intergovernmental Panel on Climate Change. This requires also a deeper assessment of renewable and decarbonised gases.

5

REGIONAL AND TECHNICAL COOPERATION: SECURITY OF SUPPLY, TRANSPARENCY AND INTEROPERABILITY



The primary work of System Operations entails developing and monitoring technical network codes, evaluating activities related to gas quality standardisation, developing and maintaining existent Common Network Operation Tools (CNOT), the ReCo System for gas, and the maintenance and continuous development of ENTSOG's Transparency Platform (TP) including activities referring to REMIT. At present, System Operation comprises two main working groups: Interoperability (INT WG) and Transparency (TRA WG).

WORK STRUCTURE

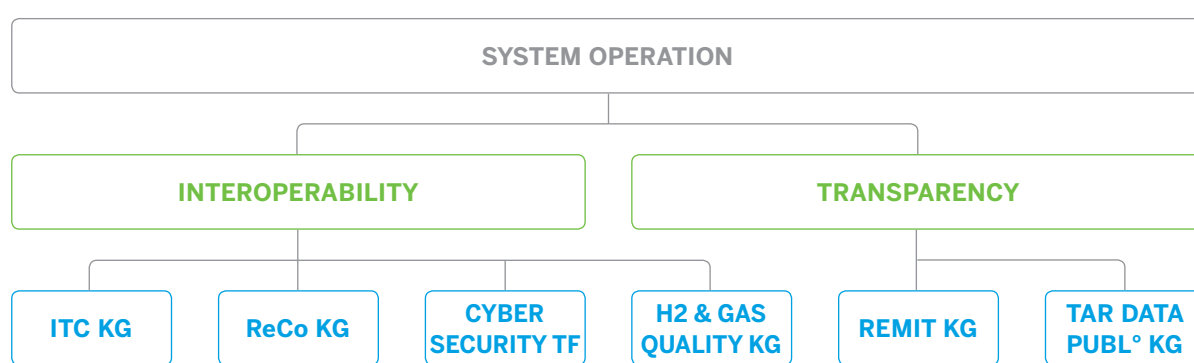


Figure 5.1: Interoperability and Transparency Working Group and associated KGs

TRANSPARENCY

The Transparency Working Group (TRA WG), which ensures compliance with the transparency requirements, is supported by the REMIT & UMM Kernel Group, following the activities in ACER's RRM User Group, ACER's REMIT Expert Group and general REMIT developments, and in 2018 also by the Tariff

Data Publication Taskforce that supported on necessary improvements to the recently released tariff publications. Lastly, TRA WG has established an informal taskforce, called (ENTSOG) Member Informal Taskforce (MIT-lab), to ensure continuous discussions on improvements to the Transparency Platform.

INTEROPERABILITY

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

ENTSOG's members work on interoperability topics is structured around the following groups within the System Operations area. The Regional Coordination System KG includes the three ReCo Teams: North-West, East and South and focusing on operational cooperation for security of supply. The Information

Technologies and Communications KG develops and maintains the ENTSOG Common Network Operation Tools for normal conditions, including Business Requirement Specifications, Implementation Guides and communication profiles. The Cybersecurity task force is jointly managed by GIE and ENTSOG. The Gas Quality and Hydrogen KG coordinates the cooperation with CEN and Marcogaz as well as prepares the TYNDP Gas Quality Outlook reports.

ACTIVITIES

ENTSOG TRANSPARENCY PLATFORM

ENTSOG's Transparency Platform (TP) provides technical and commercial data on the gas transmission systems, which includes relevant points, such as inter-connection points and storage connections, LNG facilities, distribution networks, final consumers and production facilities depending on the NRA decision. The current version of the TP was launched on 1 October 2014. It was developed with the aim of improving transparency, user friendliness and data publication capabilities. It is a powerful tool providing the means for ENTSOG's members, associated partners and observers to fulfil their data publication obligations (see Chapter 3, Annex I, Regulation (EU) No 715/2009). ENTSOG received strong support from many stakeholders with regards to TP functionalities and the information provided.

Link to the Transparency Platform:
<https://transparency.entsog.eu/>

RELEASED FUNCTIONALITIES AND IMPROVEMENTS

Improvements during 2018 included:

- ▲ Improved TP performance and response times, optimisation of TP database.
- ▲ Implementation of a new data field for indicating if virtual reverse flow is applied to a point direction
- ▲ Implementation of an improved Urgent Market Message section for publication of inside information and an updated RSS feed to be in line with the ACER guidance. The update was triggered by the updated ACER guidance for publication of inside information¹⁾ and specifications for RSS feeds²⁾
- ▲ Implementation of a solution where TSOs can manually generate their Urgent Market Messages in the back-end system of ENTSOG's data warehouse
- ▲ Implementation of improvements to the downloads available in the Export Wizard, to increase the user friendliness
 - ▲ Point Information download and APIs: information added about the Adjacent TSOs and zones

- ▲ Transport Data download and APIs: information added about CAM and CMP relevance
- ▲ Export filters: Implemented a new filter to export data based on points' Booking Platform
- ▲ Updated names of the interruption indicators to create more clarity to the user about the contents of the values
- ▲ Update to the TP Term & Conditions with a section on Privacy Policy, to ensure compliance with the GDPR regulation

Updated UMM section and RSS

Since 1 October 2014, a solution for publishing Urgent Market Messages has existed on the ENTSOG TP. In December 2016, ACER issued recommendations for a standardised format for inside information publications. ENTSOG has updated the TP Graphical User Interface and the RSS feeds to be in line with this standard format. Furthermore, ENTSOG has implemented several additional features for increased user friendliness.

- ▲ Display all assets affected by the same event in one overview
- ▲ Show the whole history of all published UMMs . The history can be downloaded as well as viewed directly in the UMM section or the Calendar section.

Publications of inside information via UMMs is open to ENTSOG Members, Associated Partners, Observers and Booking Platforms. For these users, there is a SharePoint form that can be used to create new (versions) of the UMMs as well as an XML solution to transmit the information to the ENTSOG TP automatically.

TP USAGE, STAKEHOLDER INVOLVEMENT AND DATA PUBLICATION

ENTSOG and TSOs work closely together to achieve the highest quality and comprehensiveness of the data published on the platform. To satisfy and serve the market expectations of data quality and transparency, an internal monitoring process is established to facilitate the joint efforts of ENTSOG and its members. This process is continuously evaluated and updated, to keep up with the constant changes in functionalities and reporting requirements.

1) ACER guidance on effective publication of inside information https://documents.acer-remit.eu/wp-content/uploads/4th-Edition-ACER-Guidance_updated.pdf

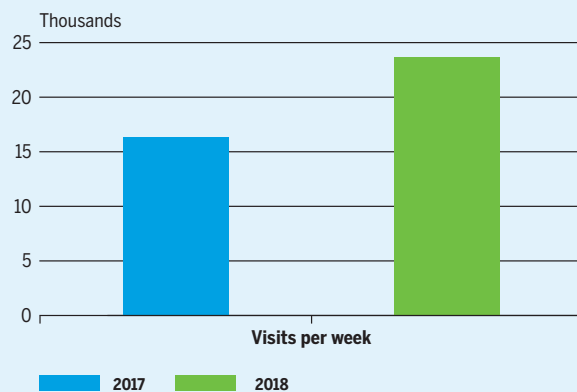
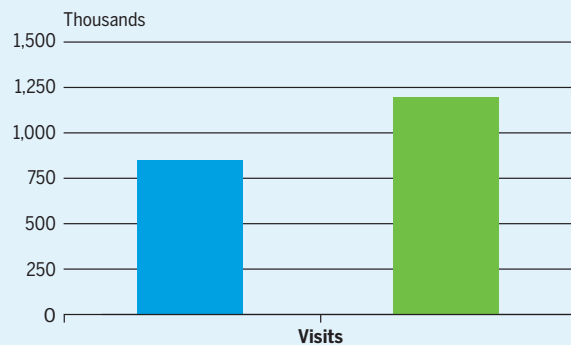
2) ACER guidance on implementation of web feeds https://documents.acer-remit.eu/wp-content/uploads/UMM_Guidance_v2.pdf

Besides TSO publications, ENTSOG is also supplying the European Commission and ACER with customised reports for specific tasks. In 2018, this entailed extensive work on reports to ACER in relation to their monitoring obligations for application of CMP measures and CAM NC.

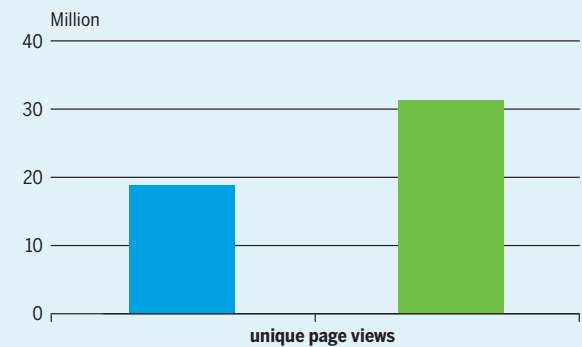
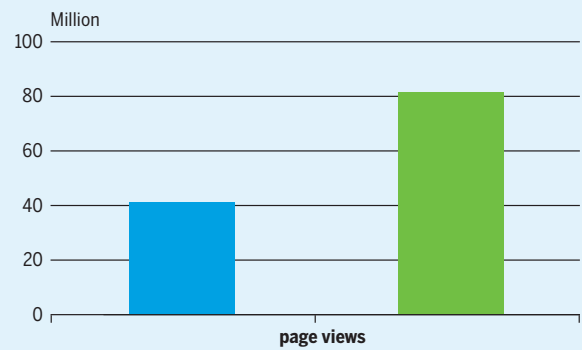
In 2018, ENTSOG used the standing TP Satisfaction Survey, aimed at getting a better understanding of the general TP user satisfaction and providing an additional forum for receiving TP user input. Since only 7 users participated in this survey, the results cannot be considered as representative. However, ENTSOG did receive some valuable suggestions which were discussed in the Transparency Working Group, prioritised for processing and presented at the 12th annual Transparency Workshop.

TP Usage statistics

Usage statistics 2018 are included below:

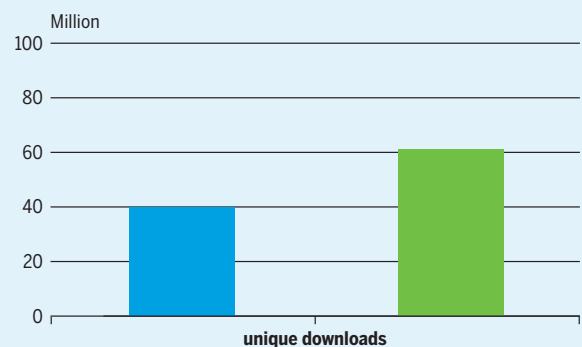
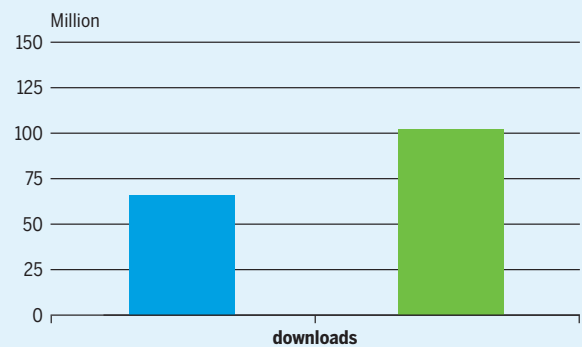


The number of visits has increased with 28% to a total of 1,217,000 in 2018 and an increase of 38% towards 23,400 for the average amount of visits per week. The highest number of visits was reached on 2018-11-01 with a number of 4,367 visits.



The number of page views has increased with 94 % to a total of 80,873,042 in 2018 and an increase of 65 % towards 30,922,369 for the total number of unique page views in 2018.

The number of downloads has increased with 43 % to a total of 101,945,648 in 2018 and an increase of 56 % towards 61,042,263 for the total number of unique downloads in 2018.





REMIT ACTIVITIES

REGULATION ON ENERGY MARKET INTEGRITY AND TRANSPARENCY (REMIT)

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

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

ENTSOG's ACTIVITIES AS RRM

Since 2015, ENTSOG has been a REGISTERED REPORTING MECHANISM (RRM). On behalf of gas TSOs, ENTSOG reports aggregated fundamental data to ACER with regards to the capacity and use of facilities for the transmission of natural gas, including planned and unplanned unavailability of these facilities, as defined in Article 9 (1) of Commission Implementing Regulation (EU) No 1348/2014.

The ENTSOG reporting system was developed according to the provisions of Commission Implementing Regulation (EU) No 1348/2014 and other supportive documentation issued by the Agency with regards to REMIT. Since 7 October 2015, ENTSOG has been reporting the following set of aggregated fundamental data to ACER, for each TSO that is publishing data on the ENTSOG Transparency Platform:

- ▲ Aggregated day-ahead nominations
- ▲ Aggregated final re-nominations
- ▲ Actual physical flow
- ▲ Technical capacity
- ▲ Available firm capacity
- ▲ Contracted firm capacity
- ▲ Total interruptible capacity
- ▲ Available interruptible capacity
- ▲ Contracted interruptible capacity
- ▲ Planned interruption of interruptible capacity
- ▲ Actual interruption of interruptible capacity
- ▲ Planned interruption to firm capacity
- ▲ Unplanned interruption to firm capacity

ENTSOG submits the required information to ACER as it was received on the Transparency Platform, to ACER's REMIT Information System (ARIS). In 2018, ENTSOG and the TSOs provided ACER's MIT department with a mapping between the disaggregated data reported to ARIS by the TSOs and the data available on the TP.

As to the data reporting performed by ENTSOG on behalf of gas TSOs, ENTSOG provides the following information to its members:

- ▲ Segregated access (per TSO) to report files submitted to ACER Reporting Information System for Applying REMIT (ARIS)
- ▲ Segregated access (per TSO) to return receipts received by ENTSOG Reporting system from ARIS
- ▲ Daily report (per TSO) on the status of files reported to ACER
- ▲ As part of the REMIT Reporting process, ENTSOG is responsible for the following:
 - ▲ Submitting ENTSOG TP data to ARIS
 - ▲ Rectifying and (re)submitting data in case of technical reporting issues between ENTSOG and ARIS.

In the light of the above mentioned tasks of ENTSOG the TSOs are responsible for carrying out the following:

- ▲ Performing complete, high-quality and timely data publications on ENTSOG Transparency Platform
- ▲ Monitoring information provided by ENTSOG on data reported on TSOs' behalf to ARIS
- ▲ If ACER rejects TSO REMIT data due to content/functional reasons, the respective TSO shall re-send the relevant information to the ENTSOG Transparency Platform. It will then be transmitted to ACER through the ENTSOG Reporting System

TSOs' IMPLEMENTATION OF REMITREPORTING

Commission Implementing Regulation (EU) No 1348/2014 stipulates that gas TSOs shall report the following disaggregated information per market participant to ACER:

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

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

To facilitate the TSOs' continued activities under REMIT, ENTSOG undertakes the following:

- ▲ Regular REMIT discussions at Transparency Working Group meetings
- ▲ Ad-hoc discussion sessions between ENTSOG's Transparency Team, TSOs and members of ACER's REMIT Team. The aim is to provide clarity on various technical and policy questions and resolve issues related to data reporting. During 2018, ENTSOG Transparency Team and Transparency Working Group participated in the following events:
 - ▲ ACER REMIT Expert Group meetings
 - ▲ ACER RRM User Group meetings
 - ▲ ACER ENTSOG TSOs' ad-hoc stakeholder webinars
 - ▲ ACER discussions on the results of the public consultation on the electronic formats for REMIT reporting
 - ▲ ACER Roundtable on inside information disclosure
 - ▲ 2nd ACER EMIT Forum

ACTIVITIES FOR TARIFF NETWORK CODE PUBLICATIONS

After the implementation of the standardised table on the TP, and the template for publications on TSOs' and NRAs' websites in 2017, the Transparency Area has continued to follow the responses of the Tariff Network Code (TAR NC) closely through updates via the cross-organisational taskforce for Tariff Data Publications. The taskforce was active throughout the year in 2018, but as needed activities has become ad-hoc character, the taskforce will continue as a Kernel Group under TRA WG in 2019.

ANNUAL PUBLIC WORKSHOP ON TRANSPARENCY

Part of ENTSOG's Annual Working Program is to foster collaboration with the Energy Communities' Contracting Parties, and therefore ENTSOG organised the 12th Annual Public Transparency Workshop in collaboration with the Energy Community on 28 November 2018 in Vienna. The workshop was organised in two sessions dedicated to the following topics:

- ▲ ENTSOG Transparency Platform including released developments, the usage of the platform and stakeholder feedback and
- ▲ A panel discussion about transparency in the Internal Energy Market

Additionally, new functionalities and preservation of historical data were discussed, and the API tools were demonstrated. All presentations and summary notes are available on ENTSOG's website¹⁾.

1) <https://www.entsog.eu/events/invitation-for-the-12th-transparency-workshop-organised-by-entsog-and-the-energy-community#downloads>

SECURITY OF SUPPLY

SECURITY OF SUPPLY (SOS) AND REGIONAL COOPERATION

Regional Coordination System for Gas (ReCo System)

The European gas market is continuously developing, and operation of the networks is becoming more complex. In that context, it is beneficial for each transmission system operator (TSO) to operate efficiently and to ensure security of supply.

In 2017, Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply came into force and states that the regional cooperation should gradually be complemented with a stronger Union perspective, allowing recourse to all available supplies and tools in the entire internal gas market.

Regional cooperation and coordination between TSOs play an important and significant role in security of gas supply, handling emergencies and helping to minimise negative effects.

To address the above-mentioned objectives, the European Union's TSOs have established specific groups – ReCo Teams. Each ReCo Team is a community of TSOs for one of the supply corridors, which are explained in Reg. (EU) 2017/1938: "Union gas supply routes that help Member States to better mitigate the effects of potential disruption of supply or infrastructure". These include TSOs from the relevant gas supply risk groups defined in Annex 1 of Regulation 2017/1938 as well as other EU TSOs if reasonable. Non-EU TSOs can also be invited by ENTSOG (after approval by the ENTSOG's Board) to be a member of a ReCo Team.

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

The Regional Coordination System for Gas has been functioning and progressing since 2014 and involving more and more TSOs. In 2018, 15 additional TSOs joined the ReCo teams and, at the end of the year, 48 TSOs (including 4 TSOs from non-EU countries) were a member of at least one of the three ReCo Teams.

During the cold spell in February-March 2018, the ReCo Teams successfully exchanged information about the situation of the European gas sector and especially about the Early Warning in Denmark, Italy and Sweden and the Emergency crisis level in Ukraine. Concerning the Emergency level in Ukraine, two dedicated conference calls between the European Commission and ENTSOG were organised.

Regarding other activities, the ReCo Team North West and South successfully passed unannounced communication exercises before the winter period.

On 17 November 2018 the ReCo Team East had a virtual meeting as a consequence of power supply malfunction in the Greifswald station in Germany which caused the temporary (around 8 hours) disruption of the gas flows from the Nord Stream pipeline. The European Commission as a head of the Gas Coordination Group was informed about the meeting and the coordination between TSOs during the event. The incident didn't have any negative impact on the market and was successfully solved by relevant parties.

ENTSOG together with the EU TSOs were working on how the principles and approaches of the ReCo System for Gas to establish it as a common network operation tool to ensure coordination of network operation in emergency conditions in line with Regulation 715/2009 Art. 8(3a) and completed the document accordingly at the end of 2018. In addition, an incident classification scale as also required by the above-mentioned regulation was adopted and TSOs agreed to use it in case of stress situations. Both documents were submitted to ACER for their opinion in 2018.

Support to the EC in terms of SoS

ENTSOG's team continued further close cooperation with the European Commission and participated in the scheduled Gas Coordination Group meetings of 2018 with the aim of providing expertise from an operational and system development point of view for the implementation of the SoS Regulation.

Furthermore, ENTSOG took part in all L-Gas Risk Group meetings throughout 2018 to provide expertise for drafting the Common Risk Assessment under the chairmanship of the Netherlands -Dutch Ministry of Economic Affairs and Climate and the Dutch TSO Gasunie Transport Services- with the assistance of the Benelux Secretariat and the involved Competent Authorities and other stakeholders of the neighbouring countries.

In November 2014 the European Commission established the Ukrainian Monitoring Mission in cooperation with ENTSOG and the Ukrainian TSO Ukrtransgaz. In that framework, ENTSOG carried out the monitoring of the daily nominations, physical flows, and the associated pressure at cross-border points between Ukraine and Russia, flows to Ukrainian gas market, and gas deliveries at the border to European member states: Poland, Hungary, Slovakia and Romania.



Picture courtesy of GAZ-SYSTEM

Recommendations relating to technical cooperation with third countries.

The recommendations were adopted in accordance with Article 8.3(c) Regulation (EC) No 715/2009, which requires ENTSOG to adopt "Recommendations relating to the coordination of technical cooperation between Community and third-country transmission system operators" ("Third country TSOs").

The document describes the key areas of technical cooperation: Security of Supply and the ReCo System;

Expert Knowledge on Interoperability; and the External Contact Platform. Furthermore, the criteria to categorise third-country TSOs are developed and the corresponding groups identified: Energy Community and EFTA countries; countries with specific agreements to accommodate or implement EU legislation; and others. For each of the categories, different recommendations for the key areas of cooperation are given.

The document was submitted to ACER for their Opinion in October 2018.

INTEROPERABILITY AND DATA EXCHANGE

INTEROPERABILITY AND DATA EXCHANGE NETWORK CODE

By June 2018, the second INT NC monitoring report was published. Results show a vast majority of interconnection points (IPs) already being operated under the required interconnection agreement. Default terms and conditions set out in the INT NC are widely used. No cross-border trade barriers related to gas quality or odourisation have been found. The areas showing a relatively slower progress are gas quality data publication and implementation of common data exchange solutions.

UPDATES OF CNOTS

In 2018, ENTSOG continued the improvement of the common network operation tools (CNOTs) with special attention to the communication profiles. Under the data exchange section of its website, ENTSOG has published or updated the following documents:

- ▲ The ENTSOG AS4 usage profile: based on received feedback from stakeholders, ENTSOG proposed some changes for the AS4 usage profile which, together with Edig@s version 6, have been presented at a joint public Workshop with EASEE-gas on 4 October and were part of a public consultation. The AS4 usage profile provides

not only interoperability guidance for the required AS4 functionality (i. e., whose requirements are mandatory and are optional), but also security guidance based on state-of-the-art best practices following ENISA recommendations and best practices implemented by eDelivery.

- ▲ ENTSOG AS4 Configuration Management Approach, which proposes a set of key AS4 data exchange configuration parameters that AS4 parties need to exchange to set up a successful connection.
- ▲ BRS for CAM and CMP adding an additional parameter to indicate a conversion from unbundled to bundled capacity in order to be in line with the amended Edig@s message.
- ▲ Setting up an AS4 System, which describes the Key steps that organisations need to take to implement AS4.
- ▲ Summary of the AS4 Q&A session which took place on 25 January. A session with stakeholders sharing their AS4 implementation experience and considering their suggestions for improvements in the new version of the ENTSOG AS4 usage profile (3.6).

FOLLOW-UP OF EASEE-GAS DEVELOPMENTS

ENTSOG cooperates with EASEE-gas in the field of data exchange as an observer in the relevant groups (Message Workflow and Design Working Group and Technology Standards Working Group), and this continued in 2018

On the basis of the collaborative work undertaken in 2018 (see also previous section), ENTSOG and EASEE-gas will organise another joint workshop on data exchange in 2019.

FUNCTIONALITY ISSUES AROUND DATA EXCHANGE

In December 2017, one of the first issues posted on the ACER-ENTSOG Functionality Platform addressed the use of AS4 by Virtual Trading Point and Storage Operators for notification of traded quantities and nomination to storage points respectively. ENTSOG, in close cooperation with ACER and the relevant stakeholders, analysed this issue and proposed potential solutions which were presented via a public consultation to market participants.

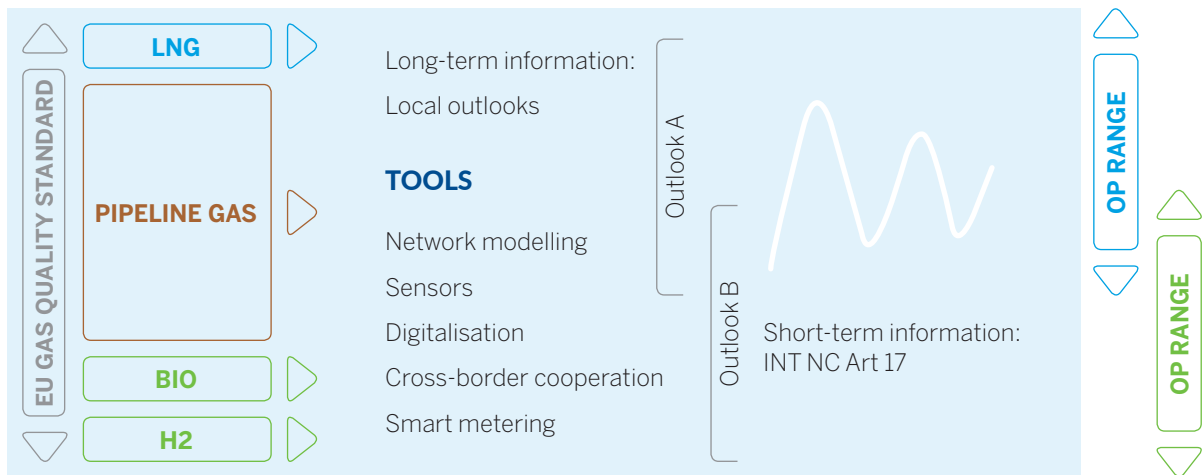
The consultation process demonstrated that stakeholders are supportive of the extension of the data exchange provisions in the INT NC to virtual trading points. Therefore, ACER and ENTSOG propose an amendment of INT NC Article 1(2), 20(1), 20(2) and 23(1) to extend the scope to virtual trading points and, subject to NRA decision, to points other than interconnection points (e.g. storage and LNG). As for encryption algorithms, ENTSOG has established a dialogue with the German NRA (BNetzA) and the German Institute for IT security (BSI) to find a possible long-term solution for document-based data exchange

In 2019 ENTSOG will amend the relevant BRS documents in order to reflect the planned extension of the INC NC scope.

OPERATION OF THE LOCAL ISSUING OFFICE (LIO) 21

The Energy Identification Codes (EIC), standardised and maintained by ENTSO-E, provides a unique identification of the market participants and other entities active within the European Internal European Energy Market. It is widely used in the Electronic Document Interchange and shall be used to identify parties and objects for REMIT.

ENTSOG continued to operate the LIO 21 throughout 2018 and now manages more than 1200 EIC codes for market participants across all Europe. In 2018, ENTSOG continued cooperating with ENTSOE via the joint CIO/LIO meetings and contributed to the upgrading of the EIC Reference Manual and addressing existing issues.



PRODUCTION

Non-discriminatory flexibility offer at entry points

TSOs

Investment in measurement and IT equipment for renewable gases. Cost and benefit reflective recovery mechanisms.

END USE

Information provision to enable risk analysis, optimisation and mitigating measures

Figure 5.2: Solutions and flexible application of standards

GAS QUALITY AND HYDROGEN

COOPERATION WITH CEN AND MARCOGAZ

During 2018, ENT SOG has continued cooperating actively with CEN and Marcogaz in the field of gas quality and renewable gases. As part of the pre-normative research carried out within the CEN Sector Forum Gas – Gas Quality Study, ENT SOG has analysed the impact on transmission systems and security of supply of the so-called simple scenarios – a set of 5 different Wobbe Index ranges. Throughout 2019, ENT SOG will continue cooperating with CEN for the revision and completion of the EN16726 (H-gas quality standard) including renewable gases.

ENT SOG is also monitoring standardisation activities regarding the injection of hydrogen in the gas grid through the CEN Sector Forum Energy Management Working Group Hydrogen. As for Marcogaz, ENT SOG is a member of the Working Group Gas Quality and Renewable Gases.

In parallel, ENT SOG has developed and published a flexible approach for handling different and varying gas qualities. In the concept paper solutions based on information provision by the TSO and a flexible application of standards are offered to tackle the inherent conflict of interests between, on one hand, supply diversification and decarbonisation; and end-use application performance on the other.

GAS QUALITY OUTLOOK FOR TYNDP 2018

During the preparation of the TYNDP 2018 Gas Quality Outlook report, ENT SOG has been adapting the methodology to include for the first time biomethane and hydrogen in the regional outlooks. Results show that while in the short-term ranges tend to remain stable there is a tendency to wider Wobbe index and gross calorific value ranges as biomethane and hydrogen shares -the latter only analysed for the North West region- increase in European networks.

CYBERSECURITY

In 2018, ENT SOG collaborated with GIE in the Cybersecurity Taskforce to build a common understanding on the key areas identified by the EC regarding a potential network code on cybersecurity for the energy sector:

- ▲ European Cybersecurity Maturity Framework
- ▲ Supply Chain Management

- ▲ European Early Warning System for Cyber Threats
- ▲ Cross-Border and Cross-Organisational Risk Management

Work will continue on this topic, beyond 2018 and through 2019.

6

ENTSO MANAGEMENT SUPPORT



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

ACTIVITIES

In 2018 the Management Support Team continued to provide support to the Business Areas and management in Brussels, and work with ENTSOG members. Support will be through the Legal, HR, Finance, IT and Communications functions to ensure there is a robust platform for the activities and deliverables of

ENTSOG's Business Areas. The General Area was also responsible for the meetings of the General Assembly and the Board. In addition, the activities of the Liaison Group, the Legal Advisory Group and the Financial Committee were organised by the General Area.

LEGAL

In 2018, the Legal Team, with the other areas organised the first two meetings of the External Contact Platform ("ECP") in April and October. The ECP was created by ENTSOG and the Energy Community Secretariat to strengthen the cooperation between ENTSOG and TSOs other non-EU gas transmission gas companies. The scope focus on coordination and technical cooperation between ENTSOG and other non-EU gas transmission system operators, as framed by Regulation 715/2009.

The Legal Team, together with the Legal Advisory Group, also contributed to the report on main GTCs differences on the bundled capacity products transport contract(s) (published in January) and to the elaboration of the ENTSOG Template Contract of Main Terms and Condition for the Offer of bundled capacity products (see section X of this report). They also facilitated the process for renewal of the Board for the term 2019–2021.

HR AND FINANCE

ENTSOG Human Resources continued with a well-prepared recruitment process, so that the relevant resources and competences were in place to perform the requested activities. ENTSOG has a strong focus on the resource allocation as well as the relevant hand-

over processes to ensure the performance of the organization vis-à-vis the required deliverables. With regards to financial reporting, ENTSOG created and implemented clear and efficient accounting procedures and controls in 2018.

COMMUNICATIONS AND POLICY

The Communications and Policy Team provides support to managerial activities as well as promoting the activities of ENTSOG to its members and the external environment. ENTSOG's primary aim is to involve the relevant market participants/stakeholders in its work. One of the tasks in 2018 was to monitor the activities and public opinions of relevant stakeholders. This was achieved by contributing to consultations, participating in conferences and fora as discussion partner or speaker, but also to maintain relations and close dialogue with media representatives.

The team coordinates annually the ENTSOG Annual Report and the ENTSOG Annual Work Programme. In 2018, the Annual Report 2017 and Annual Work Programme 2019 was published, with input from the Business Areas.

In December 2018, ENTSOG launched a redesigned website, which will continue to be updated with input and information from Members, as well as ongoing updates on ENTSOG activities. The website, Annual Report and Annual Work Programme now incorporate

ENTSOG's key activities – planning, reporting and the website are thereby aligned.

The Communication and Policy team launched an on-line course with the Florence School of Regulation on gas Network Codes. Further details on the online course and redesigned website are provided in Sections 7.1 and 7.2.

This team were also involved in the preparations and execution of ENTSOG's 2nd Annual Conference, held in Brussels in December. This was titled 'Gas Infrastructure in a Sustainable Economy' which focused on gas innovation, decarbonisation and the coupling of gas and electricity systems. Members presented their innovative projects and panel discussions involved the EC and a range of electricity and gas representatives.

The team also continued their work to develop ENTSOG's position on the activities related to the

announced revision of gas regulation. In this context, activities include ENTSOG's engagement in the upcoming reopening of the Gas Directive and Regulation, in the Clean Energy Package follow-up, including mirroring from electricity to gas legislation and other relevant EC proposals for regulation/legislation.

Key deliverables relating to this work in 2018 include the development of communication proposals, document and information sharing and working with the ENTSOG Legal Team in the preparation of regulatory concepts and proposals discussed bilaterally with many stakeholders. The Policy and Communication team have made recommendations on the most relevant actions across the whole legislative process and prepare proposals for external and internal communication on ENTSOG's position. They have also developed recommendations on ENTSOG's dialogue with the EC, European Parliament and ACER, and this work will continue in 2019 and beyond.

IT

The ENTSOG IT team provides IT support and services to the ENTSOG team (i.e. management and the Business Areas), its members and other ENTSOG stakeholders (e.g. ACER, EC). The list of the main IT projects for 2018 include the following:

- ▲ Preparation work on Transparency Platform Migration to the Cloud (Microsoft Azure) – to be executed in 2019/2020
- ▲ Preparation work on Transparency Platform Upgrade to newer version of technologies – to be executed in 2019/2020
- ▲ Development of the ENTSOG public website on new CMS platform (Drupal)
- ▲ Using Geographical Information Systems (GIS) software for the System Development projects (built on ESRI ArcGIS)
- ▲ PDWS (data warehouse) and Transparency Platform Performance enhancements
- ▲ Delivery of the updated UMM system on Transparency Platform

Beside the above listed projects, the IT team also worked on reoccurring deliverables in 2018 – the TYNDP 2018, Project Submission Portal, Capacity Transmission Map, and Summer/Winter Outlook/Review data collections.

7

RESEARCH AND DEVELOPMENT



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

In 2018 and beyond, ENTSOG is working closely with its Members to develop innovative products and services to facilitate the future role of gas in the overall European energy mix and to meet climate change targets. However, these will bring challenges as well such as coping with fluctuating gas qualities with growing renewable gases content, framing the proper conditions for connecting decarbonised and renewable gases production, planning usage of gas grids for hydro-

gen and biogas or designing new data flows between TSOs and DSOs. Nevertheless, gas systems offer long-distance transportation, long-term energy storage, decarbonisation potential and short-term demand management support tools. This work has already begun in 2018 and ENTSOG will continue to work with its Members to ensure readiness to facilitate those developments going forward.

ENTSOG'S UPDATED WEBSITE FOR EXTERNAL COMMUNICATION

ENTSOG launched in December 2018 a re-designed website to improve external communication with our key stakeholders and the wider public. The aim is to increase transparency and provide easier accessibility to our publications, documents and reports. The structure of the website changed to focus on the areas ENTSOG is actively engaged in, namely – 'Network Codes and Guidelines', 'Scenarios and Infrastructure',

'Security of Supply', 'Transparency and Technical Cooperation' as well as a newly added section on 'Future role of Gas Infrastructure'. The design was improved to provide a more interactive, visually appealing and easily navigable website. Overall, the re-designed website provides a new professional image of ENTSOG. Most importantly, the website includes a new Innovative Projects Platform to showcase TSO's R&D solutions.

TSO INNOVATIONS ON ENTSOG'S INNOVATIVE PROJECT PLATFORM

Part of the solution includes the development of an information sharing platform for TSOs, which is available on ENTSOG's website – the Innovative Projects Platform. This was developed to efficiently build on its Members efforts to promote innovative technologies, regulation and business models, and partnerships across the value chain. This platform allows for ex-

change of best practices applied by EU TSOs to support the achievement of the current EU goals of reducing GHG emissions – the innovation and decarbonisation categories are shown below. It is planned to enhance ENTSOG's R&D activity and collaborations with external parties, specifically those working for hydrogen, biogas and CCS/CCU value chains.

APPROACHES ON ADDRESSING DIFFERENT AND VARYING GAS QUALITY STANDARDS

ENTSOG developed and published in September 2018, a Position Paper on the concept of a flexible approach for handling different and varying gas qualities. In the concept paper, solutions based on information provision by the TSO and a flexible application of standards are offered to tackle the inherent conflict of interests

between, on one hand, supply diversification and decarbonisation; and end-use application performance on the other. The purpose of the paper is to explore the options available to address the current challenges and set out ENTSOG's views of what needs to happen at EU level.

UPDATED METHODOLOGY FOR ASSESSMENT IN GAS QUALITY OUTLOOK

During the preparation of the TYNDP 2018 Gas Quality Outlook report, ENTSOG has been adapting the methodology to include for the first time biomethane and hydrogen in the regional outlooks. Results show that while in the short-term ranges tend to remain stable

there is a tendency to wider Wobbe index and gross calorific value ranges as biomethane and hydrogen shares (the latter only analysed for the North West region) increase in European networks.

UPDATES TO ENTSOG /ACER JOINT FUNCTIONALITY PLATFORM

During 2018 ACER and ENTSOG analysed improvement suggestions to the Functionality platform and the process and transformed them into project steps with

the aim of making the Functionality Process more transparent, more efficient and user-friendly. The technical realisation of the improvements will start in Q2 2019.

UPDATES TO URGENT MARKET MESSAGES (UMM) FORMAT

Since 1 October 2014, a solution for publishing Urgent Market Messages on the ENTSOG TP has existed. In December 2016, ACER issued recommendations for a standardised format for inside information publications. In 2018, ENTSOG has updated the Transparency Platform GUI and the RSS feeds to be in line with this standard format. Furthermore, ENTSOG has imple-

mented several additional features for increased user friendliness. The updates include the display of all assets affected by the same event in one overview and show the whole history of all published UMMs. In addition, the history can be downloaded as well as viewed directly in the UMM section or the Calendar section.

TYNDP SCENARIO METHODOLOGY UPDATE

To further improve their joint scenarios, ENTSOG and ENTSO-E have decided to develop two top-down all-energy scenarios in addition to a bottom-up scenario. All-energy scenarios will ensure a deeper assessment of sectoral interlinkages, fuel switches and the monitoring of all GHG emissions. Furthermore, the ENTOSOs will assess the decarbonisation pathway in line with

the climate targets of the Paris agreement by considering a carbon budget as stated in the latest Special Report of the Intergovernmental Panel on Climate Change. This requires also a deeper assessment of renewable and decarbonised gases such as Power-to-Gas, biomethane and Blue Hydrogen. The draft Scenario Report will be published in Q3 2019.

IT R&D

GEOGRAPHICAL INFORMATION SYSTEMS (GIS) FOR NETWORK MODELLING AND SIMULATIONS

ENTSOG's System Development team required a tool that allows the Network Modelling simulation results to be shown on an interactive online map. Work was undertaken in 2018 by the IT team to assess the possible solutions to meet these requirements.

The ESRI ArcGIS software was chosen as the preferred tool for this business requirement. Based on business acceptance and feedback of this GIS tool already undertaken in 2018, it is anticipated that data used in future editions of the Summer/Winter Outlook/Reviews could be presented using the GIS software. In addition, work on assessment of how the data used to create

the ENTSOG Transmission Capacity and TYNDP maps and the ENTSOG/GIE System Development map data could be updated to fit the GIS format is also being undertaken.

ENTSOG WEBSITE MIGRATION TO NEW CMS

The IT team worked in 2018 to develop and migrate the ENTSOG website to a new CMS technology (Drupal). This involved significant work and was undertaken so that the website in its new format could be used as an enhanced communication tool, to allow ENTSOG reports and other deliverables to be available in a more interactive format and to ensure that the technology used by the website continues to be supported.

8

ENTSOG BOARD AND TEAMS



ENTSOG BOARD

The General Assembly accepted the following additions in ENTSOG membership in 2108:

- ▲ Albgaz Sha as an Observer as of 12 April;
- ▲ Erdgas Ostschweiz AG and BH-Gas d.o.o. as Observers as of 13 June;
- ▲ Trans Adriatic Pipeline AG as an Associated Partner as of 13 June;

The ENTSOG General Assembly also approved the following changes on the ENTSOG Board:

- ▲ Replacement of Gabriela Mares by Irina Dragoman (Transgaz) as of 13 September;
- ▲ Replacement of Nicolas Pitts by Cathy McClay (National Grid) as of 11 October;

On 12 December 2018, the ENTSOG General Assembly elected the new Board, including the President for the term 2019–2021. The Board is now composed of the people below.

On 12 December the General Assembly also designated Jan Ingwersen as ENTSOG General Manager for the term 2019–2021.



ENTSOG Board, as of 31 December 2018 From left to right: back row: Francisco de la Flor Garcia (Enagás S.A.), Pascal De Buck (Fluxys Belgium S.A.), Bart Jan Hoevers (Gasunie Transport Services), Andreas Rau (Net4gas, s.r.o.), Stephan Kamphues, President (OGE /Vier Gas Transport GmbH), Christoph von dem Bussche (GASCADE Gastransport GmbH), Vedran Špehar (Plinacro), Thierry Trouvé (GRTgaz); front row: Irina Dragoman (Transgaz), Cathy McClay (National Grid Gas plc.), Denitsa Beyazova (Bulgartransgaz), Paweł Jakubowski (Gaz-System), Gaetano Mazzitelli (Snam Rete Gas S.p.A.)

Since 1 January 2019, the following members joined ENTSOG Board:



Miroslav Bodnár
(eustream a.s.)



Tomasz Stępień
(GAZ-SYSTEM S.A.)



Harald Stindl
(Gas Connect Austria)

ENTSOG TEAMS

MANAGEMENT SUPPORT TEAM



From left to right: Areti Kostaraki, Carolina Novac, Bogdan Gugescu, Maria Dhénin, Nicolas Van der Maren, Agata Musial, Jan Ingwersen, Sara Piskor, Mauro Barbosa, Carmel Carey, Patricia Orglerova

MARKET TEAM



From left to right: Irina Oshchepkova, Séan Kinsella, Constanza Troiano, Laurent Percebois, Alexandra Kiss, Andreas Martens, Irina Fix, Malcolm Arthur, Claude Mangin, David Gil, Arjan Kleine

SYSTEM DEVELOPMENT TEAM



From left to right: Maria Fernandez, Cihan Soenmez, Martin Graversgaard, Louis Watine, Rares Mitrache, Stefano Astorri, Anne Boorsma, Jacques Reberol, Maria Castro, Anna Keri, Paula Di Mattea, Kacper Żeromski

SYSTEM OPERATION TEAM



From left to right: Kathrine Nygaard Stannov, Hendrik Pollex, Anna Keri, Antonio Gómez, Marin Zwetkow, Anton Kolisnyk, René Prins.

ENTSOG FINANCIAL STATEMENT 2018

The Financial Statement 2018 was approved by the ENTSOG General Assembly on 3 April 2019.

Values EUR	Note	2018	2017
FORMATION EXPENSES			
	20		
FIXED ASSETS			
	21/28	134,857.58	260,391.89
I. Intangible assets	21	0.00	0.00
II. Tangible assets	22/27	134,857.58	260,391.89
A. Land and buildings	22		
B. Plant, machinery and equipment	23		
C. Furniture and vehicles	24	49,161.25	88,989.43
D. Leasing and similar rights	25		
E. Other tangible assets	26	85,696.33	171,402.46
F. Assets under construction and advance payments	27		
III. Financial fixed assets	28		
A. Affiliated companies	280/1		
1. Participating interests	280		
2. Amounts receivable	281		
B. Other companies linked by participating interests	282/3		
1. Participating interests	282		
2. Amounts receivable	283		
C. Other financial fixed assets	284/8		
1. Shares and interests	284		
2. Amounts receivable and cash guarantees	285/8		
CURRENT ASSETS			
	29/58	1,957,571.16	1,959,331.83
IV. Amounts receivable after more than one year	29		
A. Trade debtors	290		
B. Other amounts receivable	291		
V. Stocks and orders in progress	3	0.00	0.00
A. Stocks	30/36		
1. Raw materials and consumables	30/31		
2. Work in progress	32		
3. Finished goods	33		
4. Goods purchased for resale	34		
5. Immovable property acquired or constructed for resale	35		
6. Advance payments	36		
B. Orders in progress	37		
VI. Amounts receivable within one year	40/41	122,935.69	67,518.88
A. Trade debtors	40	59,860.80	0,00
B. Other amounts receivable	41	63,074.89	67,518.88
VII. Short-term investments	50/53		
A. Own shares	50		
B. Other investments and deposits	51/53		
VIII. Cash at bank and in hand	54/58	1,775,956.17	1,817,474.49
IX. Deferred charges and accrued income	490/1	58,679.30	74,338.46
TOTAL ASSETS	20/58	2,092,428.74	2,219,723.72

Values EUR

Note

2018

2017

LIABILITIES AND EQUITY

CAPITAL AND RESERVES	10/15	1,138,010.08	1,289,125.41
I. Capital	10	619,892.00	619,892.00
A. Issued capital	100	619,892.00	619,892.00
B. Uncalled capital	101		
II. Share premium account	11		
III. Revaluation surplus	12		
IV. Reserves	13	300,000.00	300,000.00
A. Legal reserves	130		
B. Reserves not available for distribution	131		
1. In respect of own shares held	1310		
2. Other	1311		
C. Non-taxable reserves	132		
D. Reserves available for distribution	133	300,000.00	300,000.00
V. Accumulated profits (losses)	14	218,118.08	369,233.41
VI. Investment grants	15		
VII. Advance to associates on distribution of net assets	19		
PROVISIONS AND DEFERRED TAXATION	16		
VIII. A. Provisions for liabilities and charges	160/5		
B. Deferred taxation	168		
CREDITORS	17/49	954,418.66	930,598.31
IX. Amounts payable after more than one year	17		
A. Financial debts	170/4		
B. Trade debts	175		
1. Suppliers	1750		
2. Bills of exchange payable	1751		
C. Advances received on orders in progress	176		
D. Other amounts payable	178/9		
X. Amounts payable within one year	42/48	534,773.66	867,514.54
A. Current portion of amounts payable after more than one year	42		
B. Financial debts	43		
1. Credit institution	430/8		
2. Other loans	439		
C. Trade debts	44	470,727.94	828,278.50
1. Suppliers	440/4	470,727.94	828,278.50
2. Bills of exchange payable	441		1
D. Advances received on orders in progress	46		
E. Taxes, salaries and social security	45	64,045.72	39,236.04
1. Income taxes	450/3		
2. Salaries and social security charges	454/9	64,045.72	39,236.04
F. Other amounts payable	47/48		
XI. Accrued charges and deferred income	492/3	419,645.00	63,083.77
TOTAL LIABILITIES	10/49	2,092,428.74	2,219,723.72

Values EUR

Note

2018

2017

INCOME STATEMENT

		2018	2017
I. Sales and services	70/76A	7,877,835.38	7,211,864.16
II. Costs on sales and services	60/66A	8,023,973.74	7,813,017.29
A. Raw materials, consumables and goods for resale	60		
1. Purchases	600/8		
2. Stock variation (increase -, decrease +)	609		
C. Salaries and wages, social security costs and pensions	62	671,002.88	474,700.65
D. Depreciations and amounts written down on formation expenses, intangible and tangible fixed assets	61 630	145,842.28	149,744.70
E. Amounts written down on stocks, orders in progress and trade debtors (increase +, decrease -)	631/4	0.00	137.50
F. Provisions liabilities and charges (increase +, decrease -)	635/7		
G. Other operating charges	640/8	1,233.45	1,854.50
H. Operating charges capitalised as reorganization costs	649		
I. Non-recurring operating charges	66A		
III. Operating profit (losses)	9901	(-146,138.36)	(-601,153.13)
IV. Financial income	75/76B	22,32	106.16
A. Recurring financial income	75	22,32	106.16
1. Income from financial fixed assets	750		
2. Income from current assets	751	20.82	20.82
3. Other financial income	752/9	1.50	85.34
B. Non-recurring financial charges	76B		
V. Financial charges	65/66B	4,999.29	5,076.29
A. Financial charges	65	4,999.29	5,076.29
1. Debt charges	650		
2. Amounts written down on current assets other than mentioned under II.E. (increase +, decrease -)	651		
3. Other financial charges	652/9	4,999.29	5,076.29
B. Non-recurring financial charges	66B		
VI. Profit (losses) before tax current year	9903	(-151,115.33)	(-606,123.26)
VII. Transfers from deferred taxation	780		
VIII. Transfer to deferred taxation	680		
IX. Income taxes	67/77		
A. Income taxes	670/3		
B. Income tax adjustments and write-back of tax provisions	77		
X. Profit (losses) current year	9904	(-151,115.33)	(-606,123.26)
XI. Transfers from non-taxable reserves	789		

Values EUR	Note	2018	2017
<hr/>			
XIII. Distributable profit (losses) current year	9905	(-151,115.33)	(-606,123.26)
A. Distributable profit (losses)	9906	218,118.08	369,233.41
1. Distributable profit (losses) current year	(9905)	(-151,115.33)	(-606,123.26)
2. Accumulated profits (losses) former year	14P	369,233.41	975,356.67
B. Transfers from capital and reserves	791/2		
1. to capital and share premium account	791		
2. from reserves	792		
C. Transfers to capital and reserves	691/2		
1. to capital and share premium account	691		
2. to legal reserve	6920		
3. to other reserves	6921		
D. Profit (losses) to be carried forward	(14)	218,118.08	369,233.41
E. Shareholders' contribution against the loss	794		
F. Profit to be distributed	694/7	0.00	0.00
1. Dividends	694		
2. Directors' emoluments	695		
3. Employees	696		
3. Other beneficiaries	697		

PRESS RELEASES AND STAKEHOLDER WORKSHOPS 2018

PRESS RELEASES

- 31 December** ENTSOG publishes draft TYNDP 2018
- 26 December** ENTSOG publishes its Annual Work Programme 2019
- 19 December** ENTSOG publishes the final Template of Main Terms and Conditions for bundled capacity contracts
- 17 December** ENTSOG publishes the CAM Network Code related 'Capacity Auction Calendar' for 2019/20
- 13 December** ENTSOG and GIE publish new System Development Map 2017–2018
- 13 December** ENTSOG hosts its second annual conference 'Gas Infrastructure in a Sustainable Economy' on 12 December 2018
- 12 December** ENTSOG announces ENTSOG President and Board Members for new term from 1 January 2019 until 31 December 2021
- 26 October** ENTSOG publishes list of PS-CBA groups
- 23 October** ENTSOG publishes the Adapted 2nd Cost-Benefit Analysis Methodology for gas infrastructure projects
- 18 October** ENTSOG publishes the Winter Supply Outlook 2018.19 and Winter Review 2017.18
- 15 October** European gas and electricity transmission system operators release common position on PowertoGas ahead of Madrid Forum
- 04 September** Common energy sector statement: protecting EU energy & emissions markets from VAT fraud beyond 2018
- 28 August** ACER and ENTSOG have assessed and closed issue on implementation of VIPs for gas
- 27 July** ENTSOG opens public stakeholder consultation on its AWP 2019
- 26 July** ENTSOG publishes the revised 2nd edition of the TAR NC Implementation Document (IDoc)
- 10 July** ENTSOG publishes the template of main terms and conditions for bundled capacity contracts
- 11 June** ENTSOG publishes Annual Report 2017 and Network Code Monitoring Reports
- 01 June** ENTSOG publishes list of projects to be included in TYNDP 2018
- 17 May** ENTSOG and ACER launch Public Consultation on data exchange solutions at Virtual Trading Points and Storage Facilities
- 19 April** ENTSOG hosts first meeting of External Contact Platform with non-EU Gas Transmission Companies
- 17 April** ENTSOG publishes Summer Supply Outlook 2018 and Summer Review 2017
- 12 April** ENTSOG launches public consultation on draft Template for Main Terms and Conditions for bundled capacity contracts
- 03 April** ENTSOG publishes its first TAR NC monitoring report
- 30 March** ENTSOGs finalise European wide gas and electricity Scenario Report
- 08 February** ENTSOG and FSR launch new online course for Gas Network Codes
- 24 January** ENTSOG publishes CAM NC Auction Calendar 2018–2019
- 17 January** ENTSOG publishes supporting documents for the TYNDP 2018 project collection process
- 09 January** ENTSOG publishes report on differences between the main terms and conditions of bundled capacity products of existing transport contract(s)

STAKEHOLDER CONSULTATIONS AND WORKSHOPS 2018

MARKET DEVELOPMENT

13 December Invitation to the Joint ACER/ENTSOG Webinar on FUNC issue solution: capacity booking issue for network users on timing and comparability of daily auctions

MARKET CODES

19 September ENTSOG Workshop on Network Code Implementation and Development of Gas Legislation

12 June 4th joint ENTSOG/ACER workshop on Gas Balancing

TRANSPARENCY

28 November Invitation for the 12th Transparency Workshop, organised by ENTSOG and the Energy Community

INTEROPERABILITY

13 November The 4th Joint ENTSOG-Energy Community Interoperability Workshop

04 October ENTSOG and EASEE-gas joint workshop on Data Communication Harmonisation for Gas Transmission

SCENARIOS

02 July – 07 September Joint ENTSOs' consultation: Build Europe's future TYNDPs 2020 scenario building storylines

24 June – 31 October ENTSOs Investigation on the interlinkage between gas and electricity scenarios and infrastructure projects assessment

08 June Main TYNDP 2018 project information webinar

29 May ENTSOs for gas and electricity: TYNDP 2020 scenario development workshop

17 May ENTSO-E and ENTSOG joint workshop on interlinkage between gas and electricity scenarios and infrastructure projects assessment

13 February TYNDP 2018 & 2nd CBA methodology working session: ENTSOG consult stakeholders on modelling and market related assumptions

31 January – 28 February ENTSOG initiates project collection process for the Ten-Year Network Development Plan 2018 (TYNDP 2018)

GENERAL

12 December ENTSOG Conference on the "Gas infrastructure in a Sustainable Economy"

LIST OF ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
AR	Annual Report
ARIS	ACER's REMIT Information System
AWP	Annual Work Programme
BAL KG	Balancing Kernel Group
BAL NC	Balancing Network Code
BP	Booking Platform
CAM NC	Capacity Allocation Mechanism Network Code
CAP KG	Capacity Kernel Group
CBA	Cost-Benefit Analysis
CCS	Carbon Capture Storage
CCU	Carbon Capture and Utilisation
CEER	The Council of European Energy Regulators
CEN	European Committee for Standardisation
CIS	Commonwealth of Independent States
CMP GL	Congestion Management Procedures Guidelines
CNOT	Common Network Operational Tool
DAR	Demand Assessment Report
EASEE-gas	European Association for the Streamlining of Energy Exchange - gas
EC	European Commission
ECP	External Contact Platform
EEA	European Economic Area
EFTA	European Free Trade Association
EIC	Energy Identification Code
EnC	Energy Community
ENTSO-E	European Network of Transmission System Operators for Electricity
ENTSOG	European Network of Transmission System Operators for Gas
ETS	European Trading Scheme
EU	European Union
FDA UIOLI	Firm-Day Ahead Use It Or Lose It
FUNC	Gas Network Codes Functionality Platform
GCG	Gas Coordination Group
GIE	Gas Infrastructure Europe
GHG	Greenhouse Gases
GIS	Geographical Information System
GMD TF	Gas Market Design Task Force
GTC KG	General Terms and Conditions Kernel Group

IEA	International Energy Agency
INT WG	Interoperability Working Group
INV WG	Investment Working Group
IP	Interconnection Point
IPP	Innovative Projects Platform
KG	Kernel Group
LT UIOLI	Long-Term Use It Or Lose It
LNG	Liquefied Natural Gas
MDWG	Market Development Working Group
MIT-lab	Member Informal Taskforce
MS	Member State
NC	Network Code
NeMo KG	Network Model Kernel Group
NRA	National Regulatory Authority
OS & BB	Oversubscription and Buy Back
PCI	Project of Common Interest
P2G	Power-to-Gas
RBP	Regional Booking Platform
R&D	Research and Development
ReCo	Regional Coordination System for Gas
REMIT	Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency
RES	Renewable Energy Sources
RRM	Registered Reporting Mechanism
SCN WG	Scenario Working Group
SoS	Security of Supply
TAR DPTF	Tariff Data Publication Task Force
TAR KG	Tariff Kernel Group
TAR NC	Tariff Network Code
Tariff Idoc	Tariff Network Code Implementation Document
TP	Transparency Platform
TRA WG	Transparency Working Group
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan
UMM	Urgent Market Message
VTPs	Virtual Trading Points
WG	Working Group

COUNTRY CODES (ISO)

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

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