

ENTSOG EnC Workshop

**Developments on interoperability and
the revised SoS regulation**



Agenda



Joint ENTSOG EnC Workshop

Developments on Interoperability and the revised SoS regulation



No	Description	Time
	Registration	10:00-10:30
1	Introduction and welcome - Predrag Grujičić, Energy Community > Energy Community at glance/Third Package implementation	10:30-10:45
2	ENTSOG role and activity - Hendrik Pollex, ENTSOG > General introduction > ENTSOG's change of scope > Scheduled activities and plans	10:45-11:00
3	Energy Community Secretariat: Network code implementation status – Nina Grall, Energy Community	11:00-11:10
4	Implementation of the Interoperability Network Code > INT NC and Implementation Monitoring Report – Anton Kolisnyk, ENTSOG > Experience of TSOs – Stanisław Brzeczowski, Gaz-System > Experience of TSOs – Filip Baas, GTS > Implementation of energy units. TSOs experience – Phil Hobbins, NG > Experience of TSOs – Andrii Prokofev, Ukrtransgaz	11:10-12:45
	Lunch	12:45-13:45
5	Latest developments on Interoperability > Gas quality harmonisation process - Antonio Gómez Bruque, ENTSOG > Update of Data Exchange – Antonio Gómez Bruque, ENTSOG	13:45-14:30
	Coffee Break	14:30-14:45
6	Security of Supply > ENTSOG's Supply Corridor Approach – Hendrik Pollex, ENTSOG > ENTSOG's first European-Wide simulation – Stefan Greulich, ENTSOG > Next steps for implementation of the Revised SoS Regulation – Hendrik Pollex, ENTSOG	14:45-15:45
7	Closing remarks (ENTSOG, Energy Community)	15:45-16:00



1 Introduction and welcome

Predrag Grujicic – Energy Community Secretariat



2 ENTSOG role and activity

Hendrik Pollex – ENTSOG



ENTSOG MEMBERS



ENTSOG was created on 1 Dec 2009 and is now comprised of:

45 TSO Members and 2 Associated Partners from 26 European countries

5 Observers from EU affiliate countries:

- GA-MA AD (FYROM)
- Gassco AS (Norway)
- Swissgas AS (Switzerland)
- Ukrtransgaz (Ukraine)
- Moldovatransgaz (Moldova)





ENTSOG Members



3 kinds of memberships possible :

- > The full **Members** = EU certified TSOs
 - Represented in the ENTSOG GA (and eligible to the ENTSOG Board)
 - Participation open in the Working Groups (“WGs”)

- > The **Associated Partners** = EU TSOs enjoying derogations & exemptions according to Gas Regulation or Directive 2009/73/EC
 - Represented in the ENTSOG GA without voting rights
 - Participation the Working Groups (“WGs”) if granted by the Board

- > The **Observers** = TSO in a state candidate for accession to the EU, party to the Energy Community or to the convention establishing the European Free Trade Association
 - Represented in the ENTSOG GA without voting rights



Transparency & Interoperability Teams



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Mirsada Spaho
Senior Assistant,
System Development
and System
Operation, Training &
Web Support

Network Codes



2014

2015

2016

2017

CMP
Transparency

Implementation
Firm day-ahead Use-It-or-Lose-It

CAM
(note INC and other
amendments)

Implementation

Balancing

End.

Implementation

Delayed
Implementation

**Inter-
operability**

Endorsement

Implementation

Tariffs

Development

Endorsement

Implementation

Delayed
Implementation

**Incremental
Capacity**

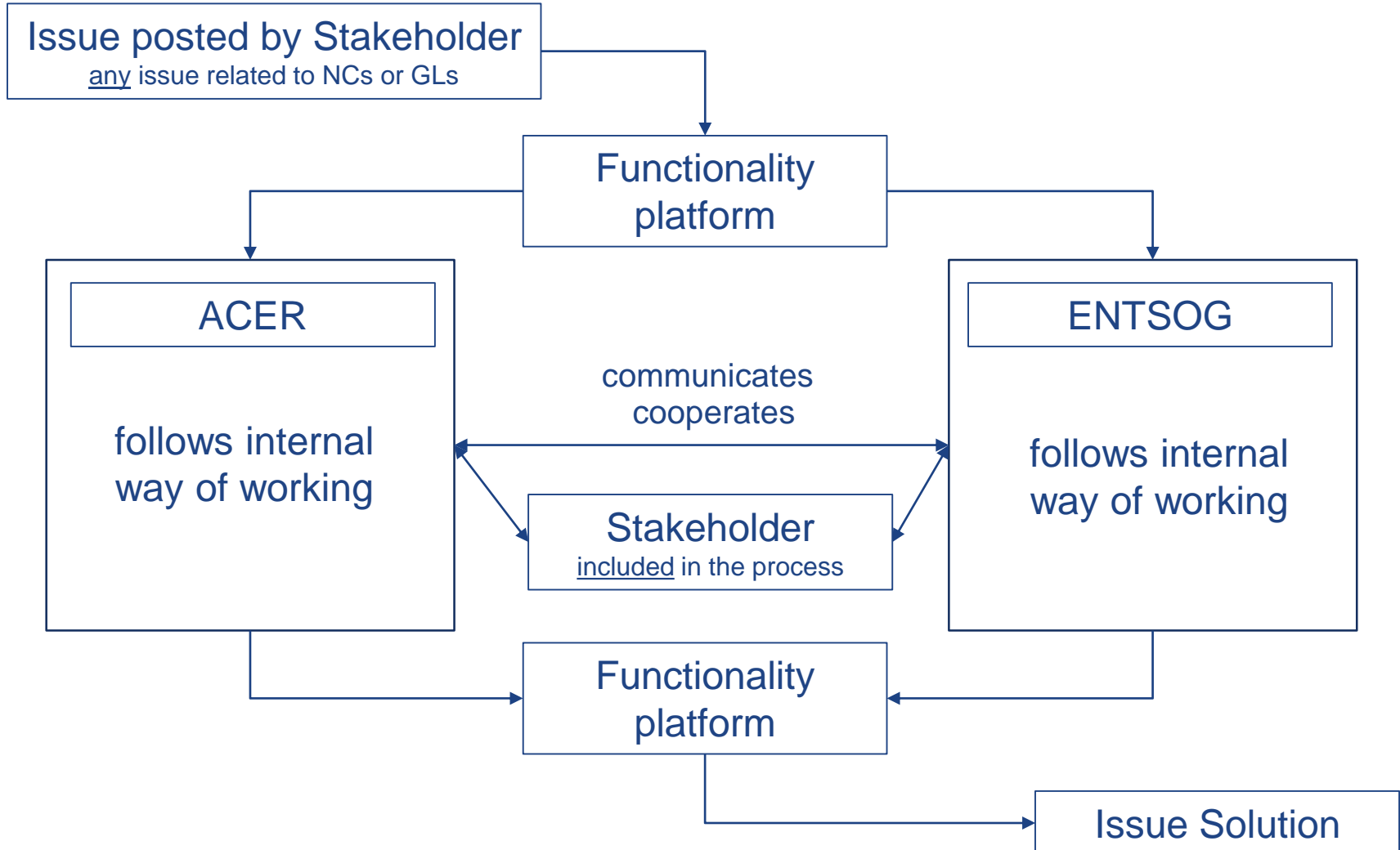
Development

Endorsement

Implementation



Functionality Platform. External Process





Scheduled activities and plans

- *INT&DE NC implementation monitoring*
- *Technical support of third countries*
- *Development of TP*
- *QG standardization process*
- *Development of the ReCo System for Gas*
- *Maintaining of existing DE solutions*
- *LIO office*
- *Support of TSOs, CA, EC, other stakeholders in the implementation of the SoS Regulation*



3 Network code implementation status in the EnC

Nina Grall– Energy Community Secretariat



4 Implementation of the Interoperability Network Code

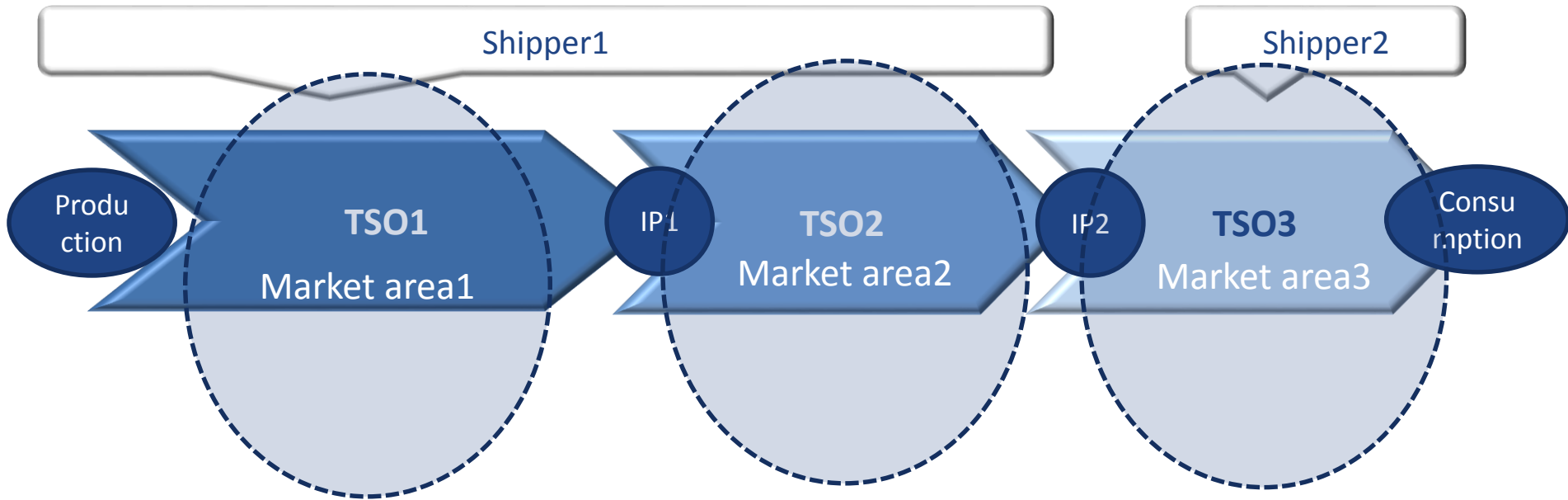


4.1 INT NC and Implementation Monitoring Report

Anton Kolisnyk - ENTSOG



Why do we need an INT NC?

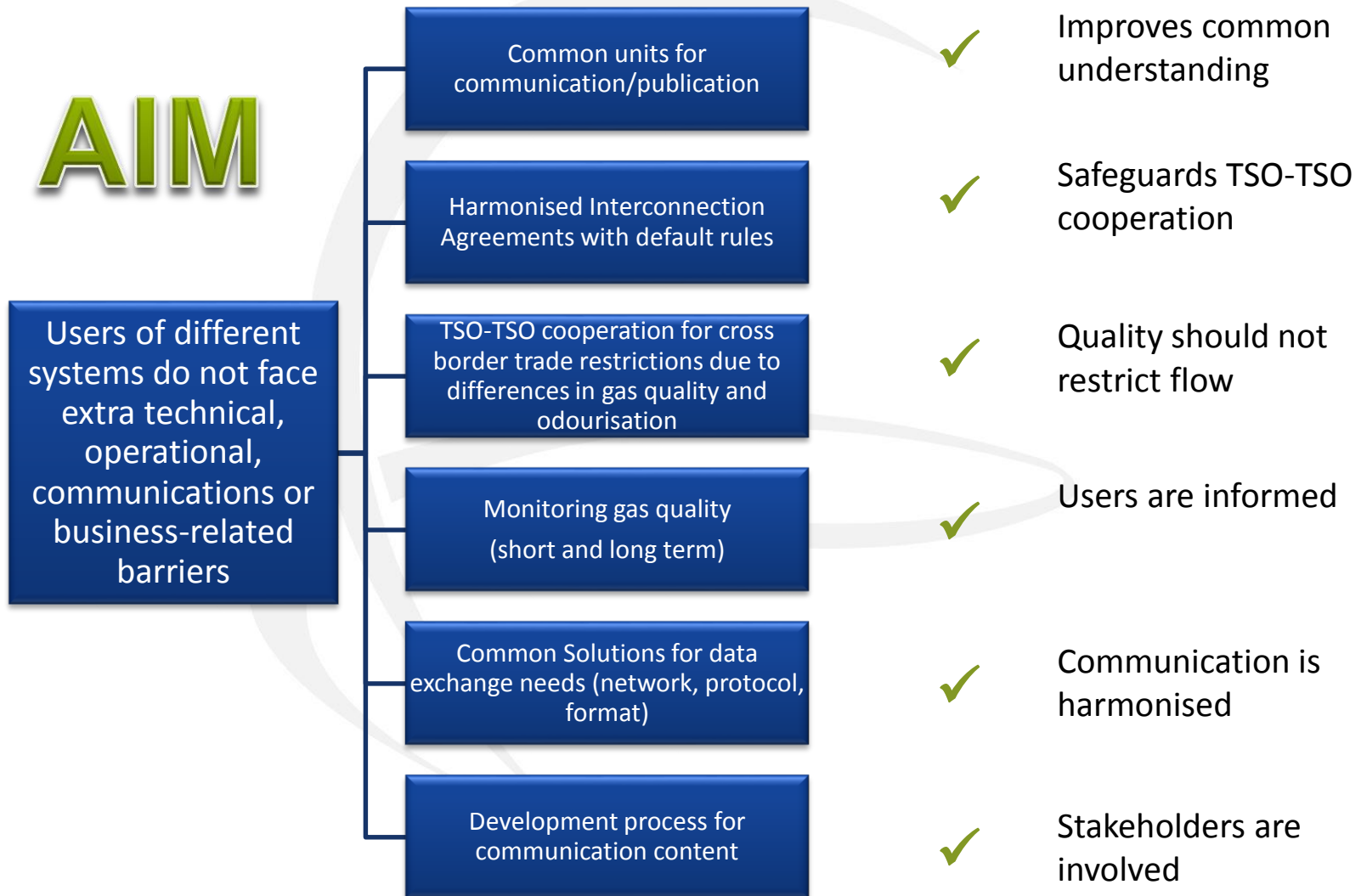


Shippers working with different TSOs have to be sure that barriers for the free flow of gas in the Union are removed.



What's the added value?

AIM





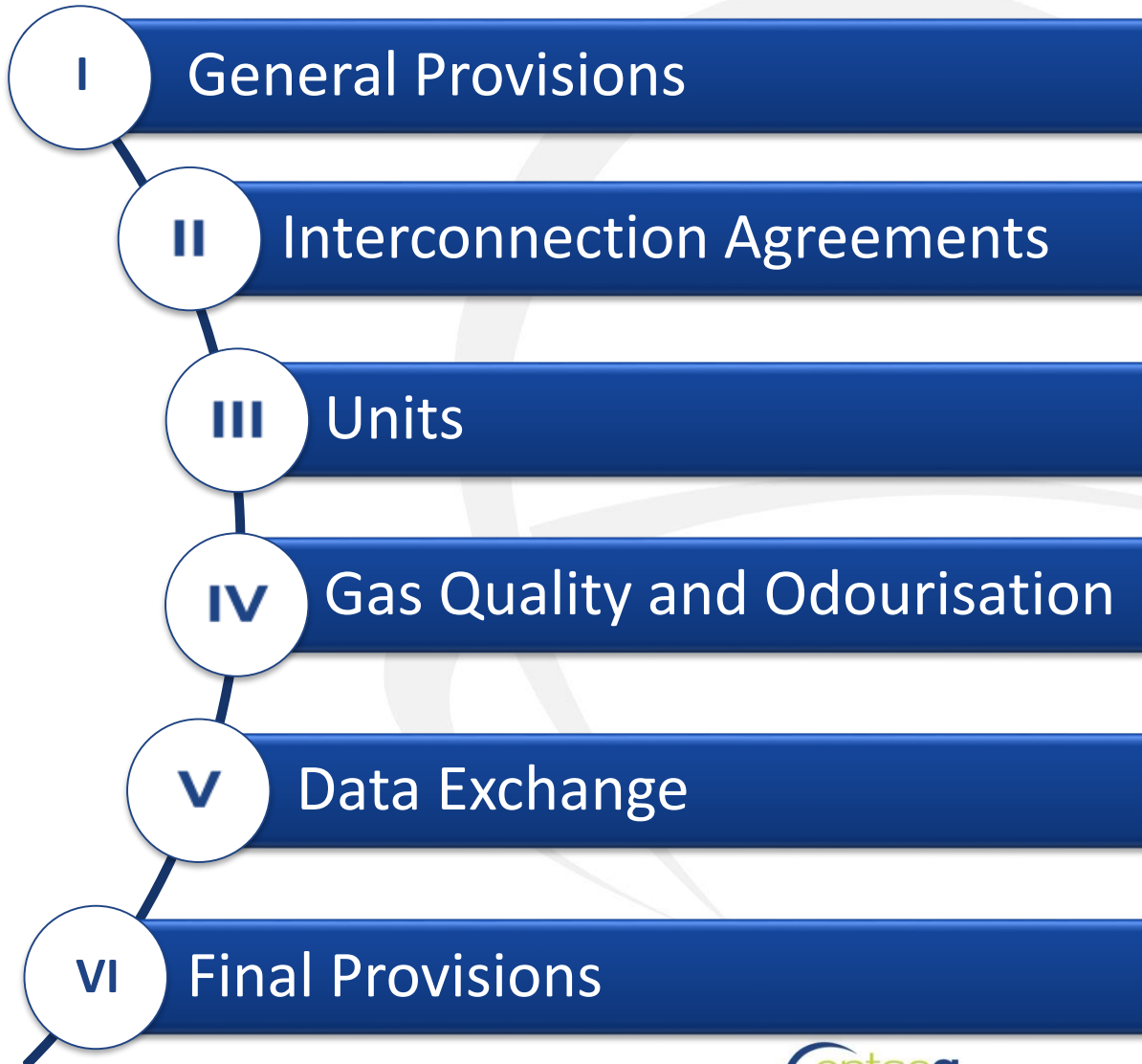
Interoperability Network Code. Dates.



- **5 April 2015** - the Network Code (Commission Regulation (EU) No 2015/703) was approved by the EU Gas Committee
- **1 May 2016** - The implementation date

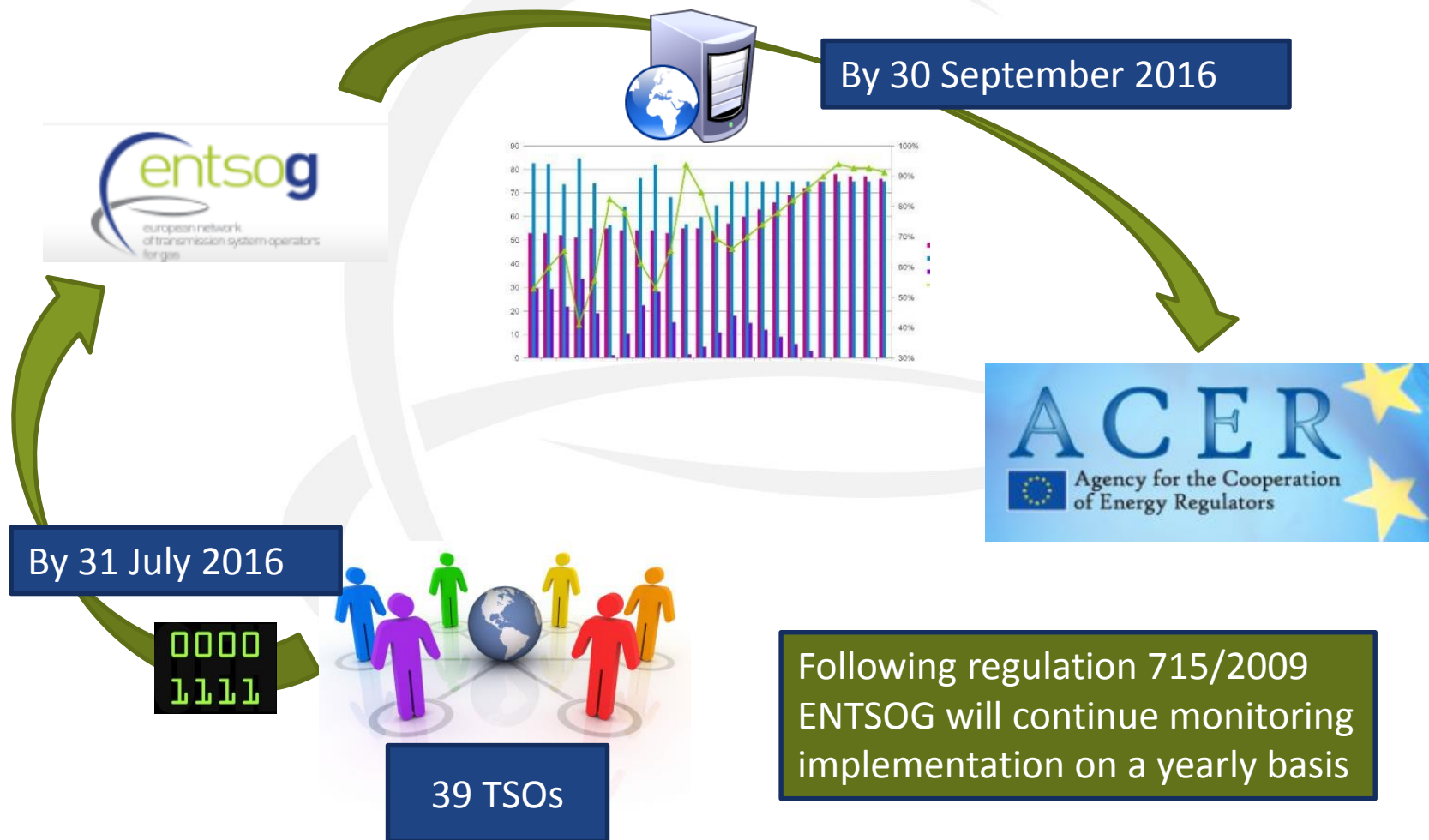


NC INT Chapters



VI. Final Provisions

Article 25 Implementation Monitoring



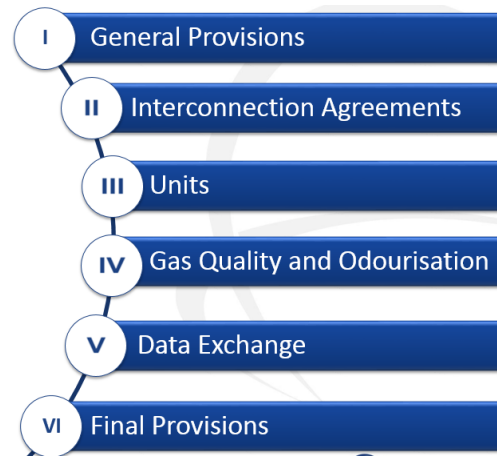


Monitoring Process



To assess the implementation of the INT NC ACER and ENTSOG agreed questionnaire for European TSOs:

- The questionnaire consists of two parts:
 - general questions
 - IP specific questions
- The questionnaire was composed addressing the requirements of each article of the INT NC.





Monitoring Process



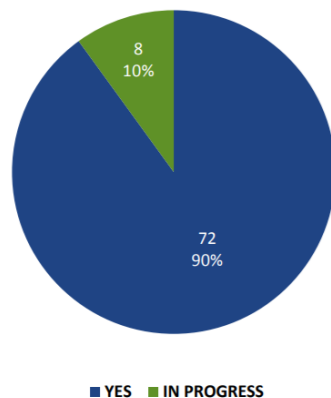
- Detailed information provided by TSOs
- All information aggregated and forwarded to ACER
- ENTSOG publishes an overview of the implementation of the INT NC in EU



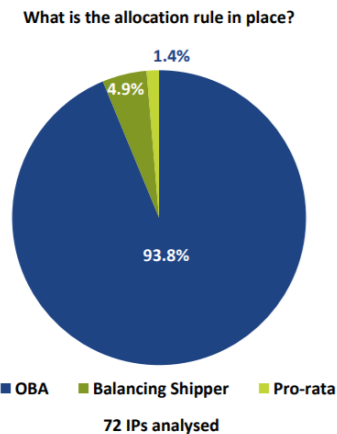
INT NC Implementation Monitoring Report

[Click the link to INT NC monitoring report](#)

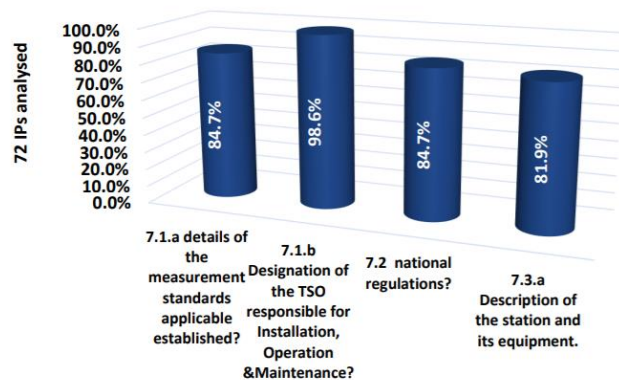
Article 3: Does the IP have a signed IA in place?



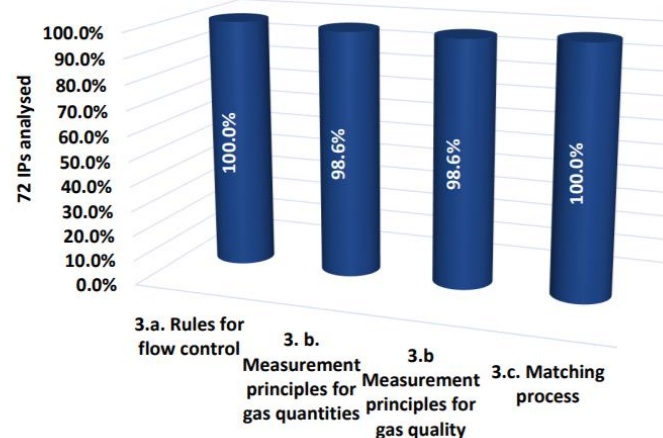
Article 9: Rules for allocation of gas quantities?



Article 7: Regarding measurement principles on the IA, are the following topics or principle addressed?



Article 3: Terms covered by the IA?





Conclusions in the Report

90 % (72 of 80) of interconnection points (IPs) are covered with **interconnection agreements (IAs)** between adjacent TSOs following INT NC provisions

The **lesser rule** is implemented as the matching rule in the vast majority of agreements.

The operational balancing account (OBA) is widely used as the allocation rule.

No cross-border trade restrictions due to differences in gas **quality or odourisation** practices that cannot be avoided by mutual cooperation between TSOs have been detected.

More than 83% of the TSOs are publishing on their websites Wobbe Index (WI) and Gross Calorific Value (GCV) for each Entry IP once per hour.

The majority of TSOs have implemented or are in the progress of implementing one or more of **the common data exchange solutions** for Nomination and Balancing processes and CAM/CMP processes. In addition to the common solutions, **82% of TSOs** have advised that **existing solutions are staying in place**.



Additional developments by ENTSOG

- **Template for IA – *December 2015***
- **Common Network Operation Tools**
to specify Common Data Exchange
Solutions – *November 2016*
- **Long Term Gas Quality Monitoring
Outlook – *December 2016***



INT NC Implementation Report Way Forward

Update and agree the Questionnaire	October 2017
Replies from TSOs	November- December 2017
Implementation report INT NC 2017	Q2 2018 together with CAM, CMP and BAL IM and EM reports



4.2 Negotiation of Interconnection Agreements. Experience of TSOs

Stanisław Brzęczkowski - Gaz-System



4.3 Negotiation of Interconnection Agreements. Experience of TSOs

Filip Baas - GTS



4.4 Implementation of energy units

Phil Hobbins – National Grid



4.5 Negotiation of Interconnection Agreements. Experience of TSOs

Andrii Prokofiev - UKRTRANSGAZ



5. Latest developments on Interoperability

Antonio Gómez Bruque - ENTSOG



5.1 Gas quality harmonisation

Antonio Gómez Bruque - ENTSOG



Gas quality harmonization

The legal background

Standardisation process

- Mandate M400
- A standard without Wobbe Index

The INT NC

- Cross-border trade barrier removal mechanisms
- An invitation by EC to ENTSG to amend the INT NC
- Analysis of ENTSG: no cross-border trade barriers and potential negative impacts

Madrid Forum

- Cancellation of the amendment process
- CEN to continue working on Wobbe Index
- EC to review harmonization when CEN is ready



Gas quality harmonization

The INT NC amendment and impact analysis

Stakeholder input to the proposed scenarios:

- Whole EU chain might bring widespread negative impacts:
 - Gas that is accepted today would be rejected (20% of UK production, CO2 limit)
 - Unintended barriers to biomethane injection (due to O2 limit)
 - Less efficient cross-border trade and market liquidity
- IP scenario: currently, no cross-border trade barriers, so little added value.
- Voluntary adoption is the preferred option, but it might also bring problems on national level.
- All scenarios:
 - End user uncertainty on safety if exposed to wide ranges
 - Flexibility when applying the standard both on entry and exit points would be helpful

Conclusions of the report:

- recommendation not to amend the network code
- Lack of clarity on a definition of the problem may introduce uncertainty in the CEN standardization work



Gas quality harmonization

Existing tools in the network code

TSO-TSO cooperation to manage cross-border trade restrictions:

- Article 15 for gas quality
- Article 19 for odourisation

Short term gas quality monitoring

- Article 16: hourly publication of GCV and WI for physical entry IPs
- Article 17: information provision to 'sensitive' customers

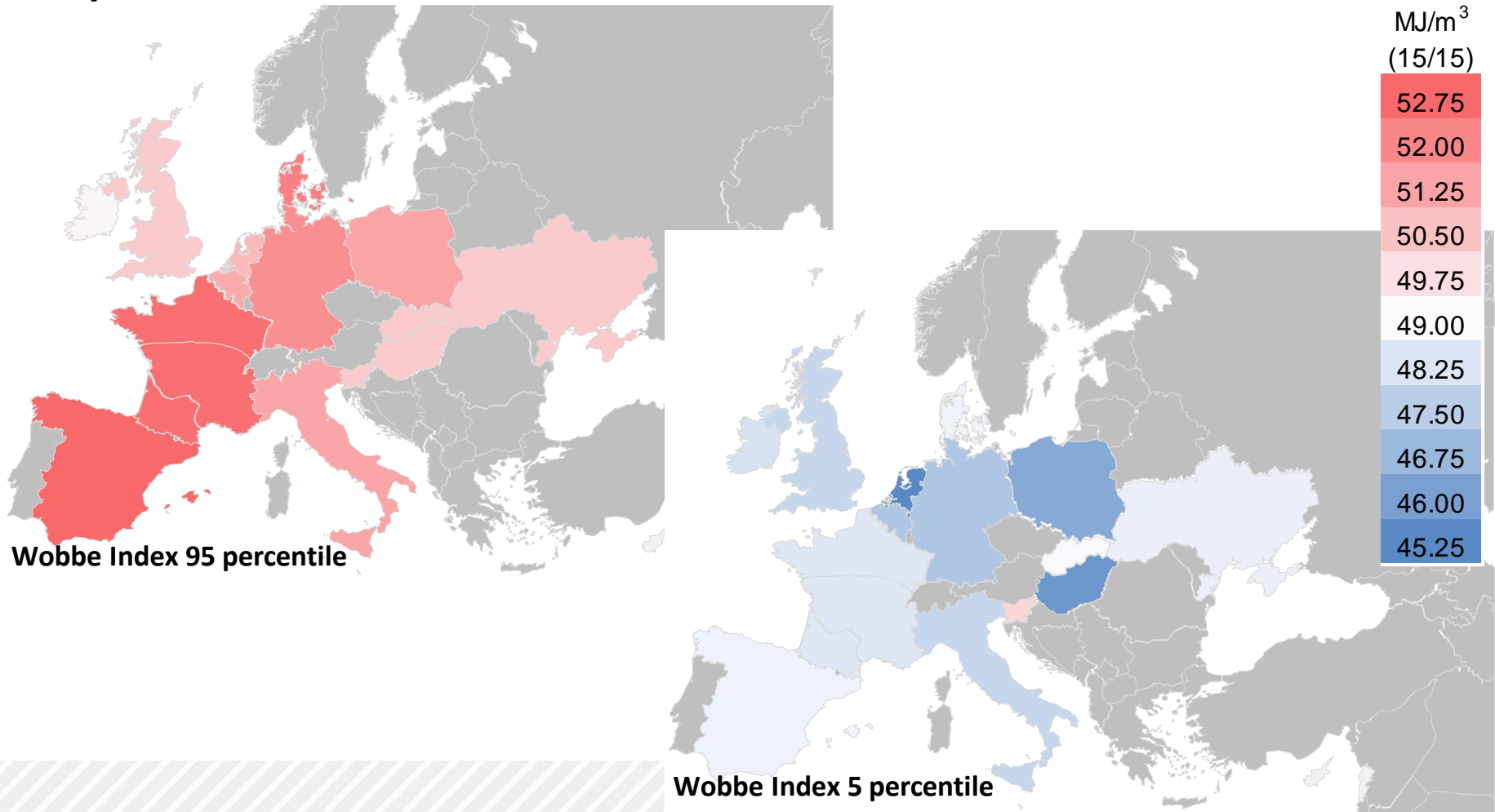
Long-term gas quality monitoring outlook:

- Article 18



Gas quality harmonization

Gas qualities in Europe: the contribution of ENTSG to the CEN process

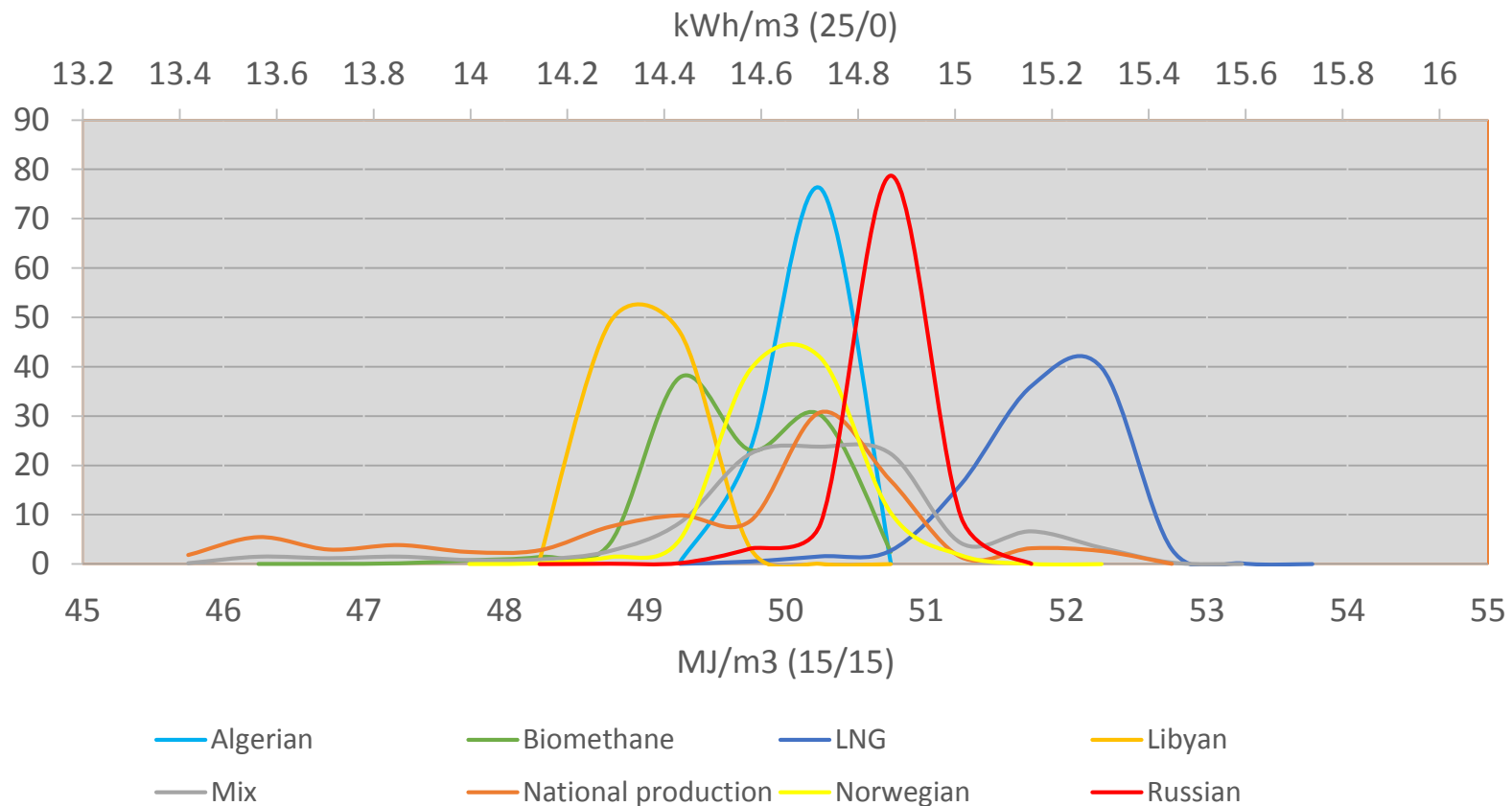




Gas quality harmonization

Gas qualities in Europe: the contribution of ENTSOG to the CEN process

Frequency distribution of Wobbe index



Gas quality harmonization

Pros and cons

Pros:

- Give a clear European technical framework for the introduction of green gases and future and existing supply corridors.
- Enable the (further) technical development of end uses of gas for the energy transition in the EU (mobility and air quality, high temperature heat for industry)

Cons:

- If too wide, restriction the development of gas applications and increased costs for gas (industrial) end users to meet safety, efficiency and environmental requirements.
- If too narrow, additional production costs that may be detrimental to security of supply, reduce market liquidity if too restrictive with national production, which is quite diverse and even deter new developments for local needs.

The topic of Gas quality harmonisation could be a positive step for the European Energy Market but should be provided with the necessary flexibility to adapt to changing needs and in consideration of existing tools in the Interoperability network code



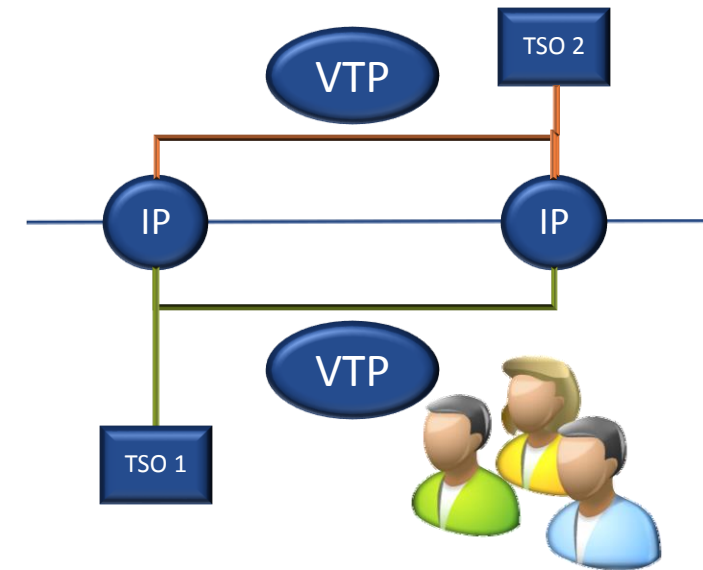
5.2 Update on data Exchange

Antonio Gómez Bruque - ENTSOG



Chapter V. Data Exchange

Article 20: General provisions



Network users active at IPs
or IPs and VTPs

SCOPE

- Congestion Management Procedures
- NC Capacity Allocation Mechanisms
- NC Gas Balancing
- NC Interoperability & DE
- REMIT

GOAL: Remove barrier for free flow of gas in EU through harmonisation of

- Operational procedures at IP's
- ICT communication standard TSOs NUs

OUTCOME: Faster implementation; cost efficiency; multiple vendor solutions



Data Exchange types

➤ Components for Data Exchange

- Data content (**WHAT**) → Business related
- Data Network → Internet
- Data protocol (**HOW**) → IT technology

➤ Types of Data Exchanges – INT NC Art 21 (1)

- Document based (AS4 – Edig@s XML)

The data is wrapped into a file and automatically exchanged

- Integrated (HTTPS – SOAP - Edig@s XML)

The data is exchanged directly between two applications

- Interactive (web browser)

The data is exchanged interactively via a browser

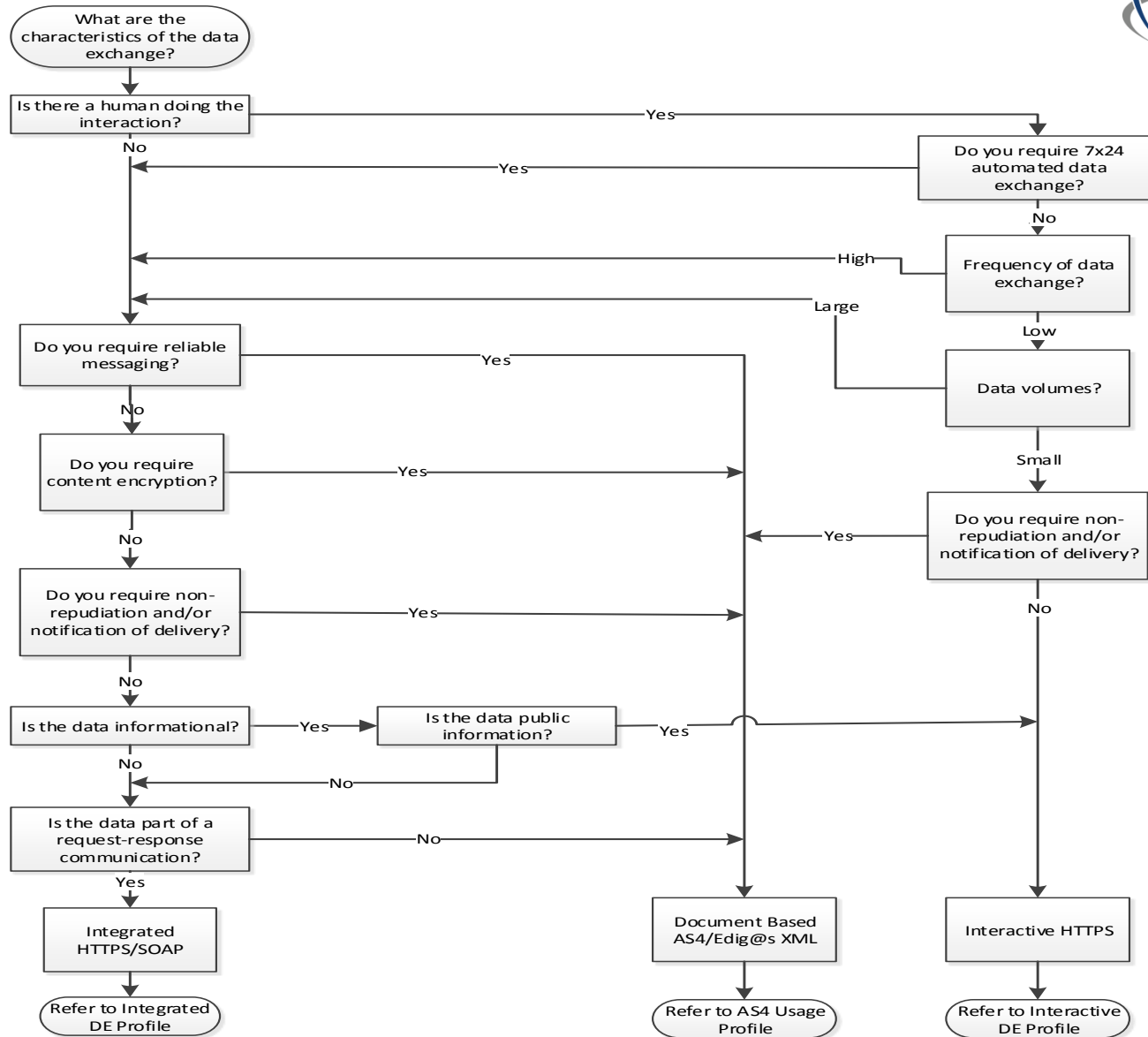




Data exchange

Common Network Operation tools:

- > Business Requirements Specifications for CAM/CMP and Nomination/Matching
- > Common data exchange solution table:
 - CAM/CMP data exchanges:
 - Common solution: interactive (except surrender of capacity, document-based)
 - Optional solution: document-based (except surrender of capacity, interactive)
 - Nomination and matching data exchanges:
 - Common solution: document-based
 - Optional solution: interactive
 - Published on November 2016 with 1 year of implementation lead time
- > Implementation guidelines for CAM/CMP and Nomination/Matching
 - In cooperation with EASEE-gas
- > Supporting documentation for implementation of AS4, interactive and integrated data exchange.



Supporting Documents



<https://www.entsog.eu/publications/common-data-exchange-solutions>

Introduction to the ENTSOG Common Data Exchange Solution

- An overview of data exchange solutions in relation to ENTSOG CNOTS

AS4 Usage Profile

- Support for the exchange of Edigas XML documents (FAQ document available)
- AS4 Mapping Table Edig@s 5.1 (Service and action fields, etc)
- ENTSOG AS4 Agreements & Agreement Updates (e.g. automated exchange of certificates)

AS4 How to Set Up a System

- Describes deployment and configuration for ENTSOG AS4

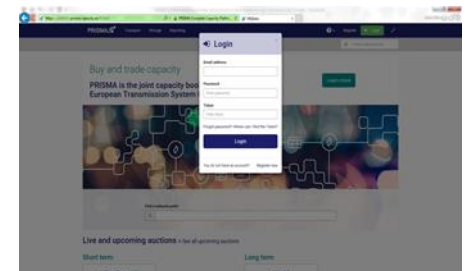


Interactive Data Exchange Use Case Classification



Four types of Interactive Data Exchange:

1. Anonymous access to public information
2. Authenticated access to public information
3. Authenticated access to private information
4. Authenticated transactions involving private information



Common Data Exchange Solutions for CAM & CMP

Information Flow	From Role	To Role	Confidentiality Level	Common Data Exchange Solution	Optional Data Exchange Solution – second most preferred by stakeholders**
Network User Registration*	Network User	Transmission System Operator	Private	Recommendation – Interactive	Recommendation - Interactive
Network User Registration to Auction Office*	Network User	Auction Office	Private	Recommendation – Interactive	Recommendation - Interactive
Approved Network Users*	Auction Office	Registered Network User	Private	Recommendation – Interactive	Recommendation - Interactive
Surrender Capacity Rights	Registered Network User	Auction Office	Private	Interactive	Document Based
Offered Capacity	Auction Office	Registered Network User	Private	Interactive	Document Based
Capacity Bid	Registered Network User	Auction Office	Private	Interactive	Document Based
Allocated Capacity	Auction Office	Registered Network User	Private	Interactive	Document Based
Aggregated Auction Results	Auction Office	All	Private	Interactive	Document Based
Surrendered Capacity Sold	Transmission System Operator	Registered Network User	Private	Document Based	Interactive
Reverse Auction Bid	Registered Network User	Auction Office	Private	Interactive	Document Based
Allocate Reverse Auction Results	Auction Office	Registered Network User	Private	Interactive	Document Based
Secondary Market Sales	Registered Network User	Transmission System Operator	Private	Interactive	Document Based
Secondary Market Sales	Transmission System Operator	Registered Network User	Private	Interactive	Document Based

*Data exchange solution is not mandatory but recommended and has to be negotiated between the TSO and NU

**Neither the offering nor the format of an Optional Data Exchange Solution is mandatory

Document Based (AS4) Data Exchange:

- > Support the implementation of AS4 certificate management and renewal functionality
- > Support for the AS4 Configuration Specification and Portal (repository of AS4 parties)
- > Maintenance and documentation of the AS4 Mapping Table

Interactive Data Exchange:

- > Operational data exchange parameters for the upload and download functionality

Integrated Data Exchange:

- > Investigation of use cases for the Integrated Data Exchange profile

Workshop related to the implementation of the common data exchange solutions

Follow up of (cyber) security regulation and evolution for data communication



6 Security of Supply



6.1 ENTSOG's Supply Corridor Approach

Hendrik Pollex - ENTSOG



Former EC criteria for the definition of regions

- Geographical proximity;
- Existing and planned interconnections and interconnection capacity between Member States as well as the supply patterns;
- Possibility to pool resources and balance risks for security of gas supply across the region;
- Market development and maturity;
- Manageable number of Member States in each region;
- To the extent possible, existing regional co-operation structures.





Preliminary comments

- The new regulation on security of supply is foreseeing measures in order to improve regional cooperation, such as mandatory regional risk assessments, preventive action plans and emergency plans.
- In order to avoid any delay when implementing those new tools, DG ENER proposed the definition of regions where cooperation is mandatory (Annex I).
- Several Member States disagreed with the proposed definition of regions, and ENTSG proposed to develop a supply corridor concept that could be seen either as an alternative solution or a complementary solution, the so-called Emergency Supply Corridor (ESC) approach.

Regional approach not flexible enough to cope with the scenarios as there are cases when several regions are impacted and cooperation between them as well as with other regions is be needed.



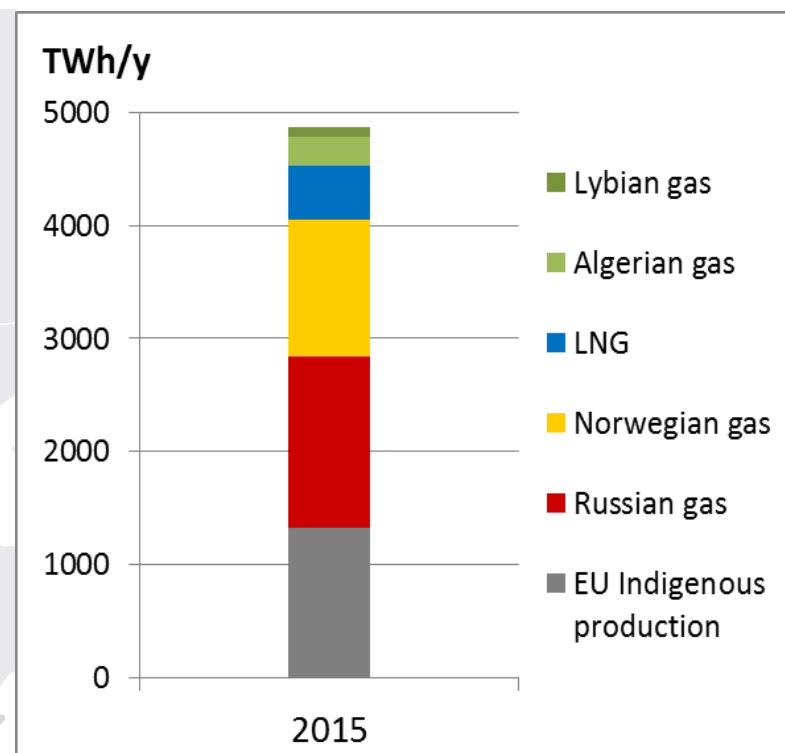
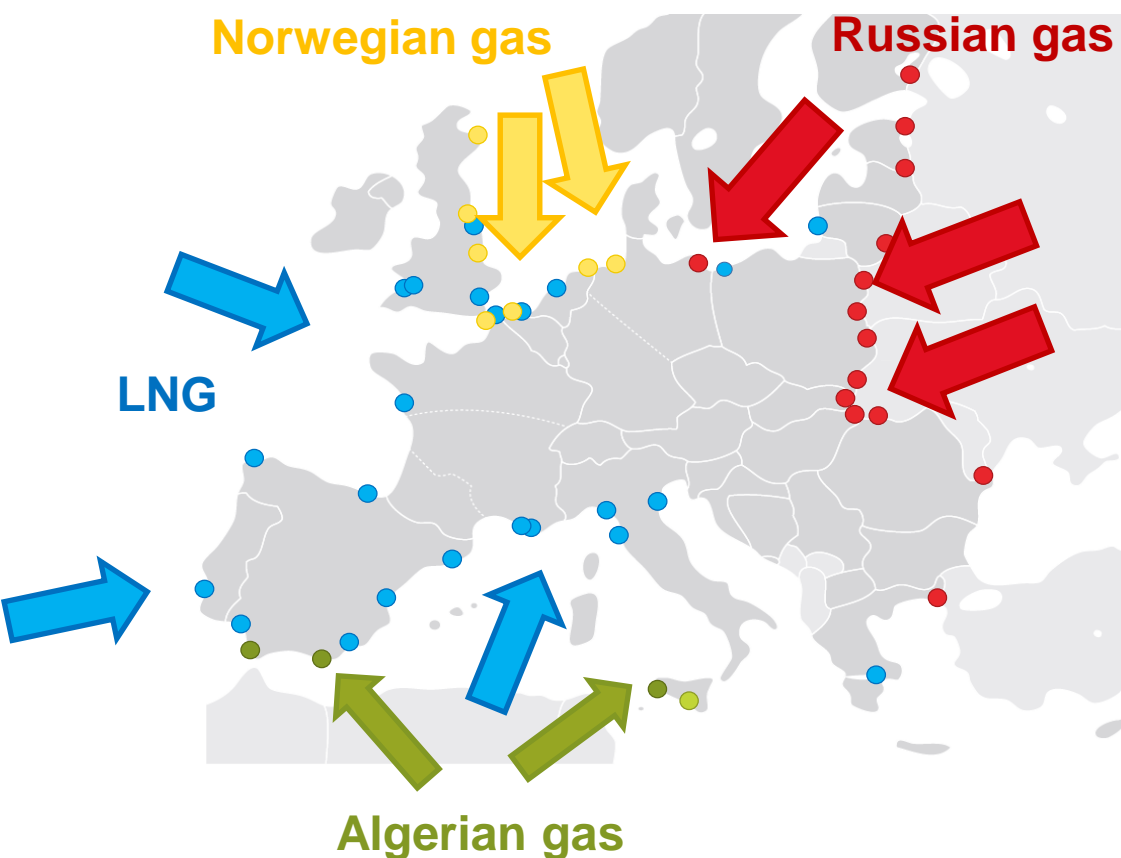
General comments about the ESC approach



- ❑ The “Emergency Supply Corridor Concept” is a practical proposal that supports and can strengthen flexible cooperation between Member States.
- ❑ It is a result-oriented approach to identify Member States which would benefit from greater coordination, based on scenarios and simulations.
- ❑ The impact assessment of disruption scenarios has been based on the ENTSOG’s experience related to the 2014 stress tests.

Main Entry Points for Gas Supply in Europe

● Existing Import Point from: ● LNG ● Norway ● Russia ● Libya ● Algeria



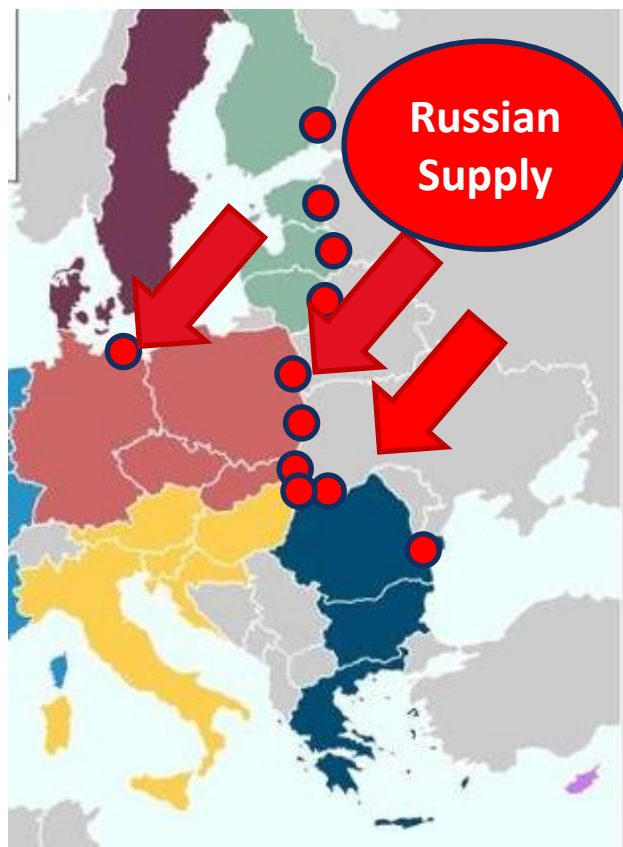
Russian gas supply – East Supply Corridor



- **1 main Supply source**
 - More than 30% of Europe's supply
- **3 main transport routes**
 - North Stream
 - Yamal
 - Ukrainian transit route
- **Baltic countries**
- **9 directly (or via UKR) connected EU countries plus indirectly connected EU countries plus EnC CP**
- **Gas shipped into 4 different predefined regions plus EnC CP**



Possible impact of Russian gas supply disruption



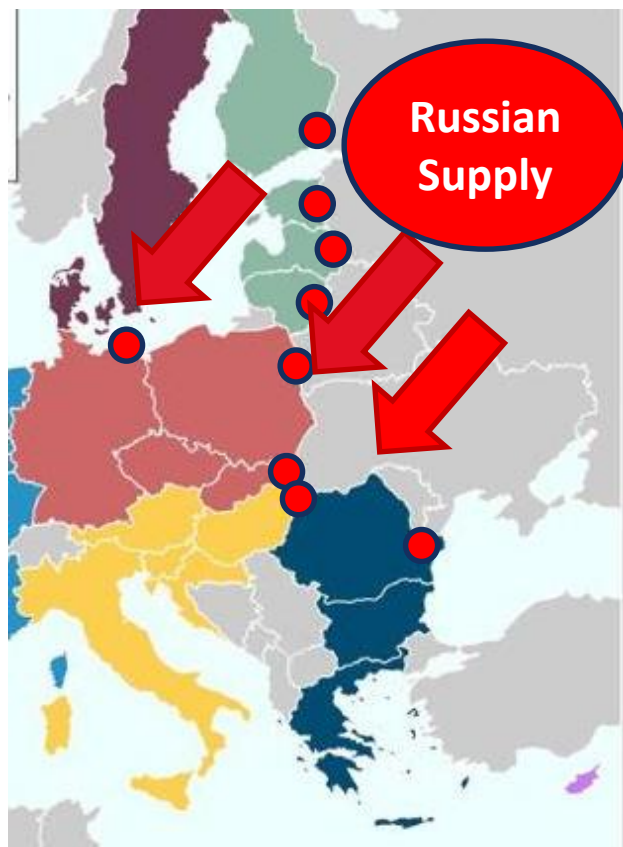
- **Russian gas supply totally disrupted**
 - 4 Regions and 9 EU Countries directly impacted
 - In addition a few more Countries indirectly impacted
 - EnC contacting parties
- **North Stream disrupted**
 - 1 Region directly impacted
- **Yamal pipeline disrupted**
 - At least 2 Regions are directly impacted
- **Ukrainian transit route disrupted**
 - At least 3 Regions are directly impacted



Regional approach not flexible enough to cope with the scenarios



Flexible Corridor approach for PAP and EP



- Preventive Action and Emergency Plan development with the following scenarios

- No gas to the Baltic countries
- North Stream disrupted
- Yamal pipeline disrupted
- Ukrainian transit route disrupted
- Balkan region



- Impact assessment and possible counter measures incl. support of other Regions



- Result of countermeasures will be part of the Preventive Action and Emergency Plans



- Countermeasures will be applied before and in an emergency



Definition of an Emergency Supply Corridor

- ❑ Gas (excluding LNG) is imported from a limited number of producing countries and flows within Europe through major gas pipelines connecting Member States. These pipelines form gas supply routes.
- ❑ The “Emergency Supply Corridor” is a set of Member States, positioned along a relevant gas supply route, where cooperation is beneficial in mitigating the impact of a potential gas supply disruption, based on an analysis of European gas supply disruption scenarios.
- ❑ The “Emergency Supply Corridor Concept” supports:
 - ✓ A better informed and coordinated management approach to potential disrupted demand, for the supply corridor directly impacted
 - ✓ Identification of “back-up” Emergency Supply Corridors, which can maximize imports of alternative gas sources and help to mitigate impacts from disruptions



Specifics of the Emergency Supply Corridor Concept



- ❑ The “Emergency Supply Corridor Concept” provides flexible reaction opportunities to different supply disruption scenarios.
- ❑ Preventive and Emergency plans can use input from the “Emergency Supply Corridor” analysis as a basis for diversified back-up scenarios.
- ❑ Member States that could help to cope with supply shortfalls through their existing connections to supply sources and infrastructure are identified in advance. Member States can make pre-arrangements with relevant partners on an “Emergency Supply Corridor”.
- ❑ Ex-ante coordination mechanisms and preventive emergency planning is spread even wider.
- ❑ The “Emergency Supply Corridor Concept” is consistent with the criteria defined in Art. 3 Para. 7 for the composition of regions.



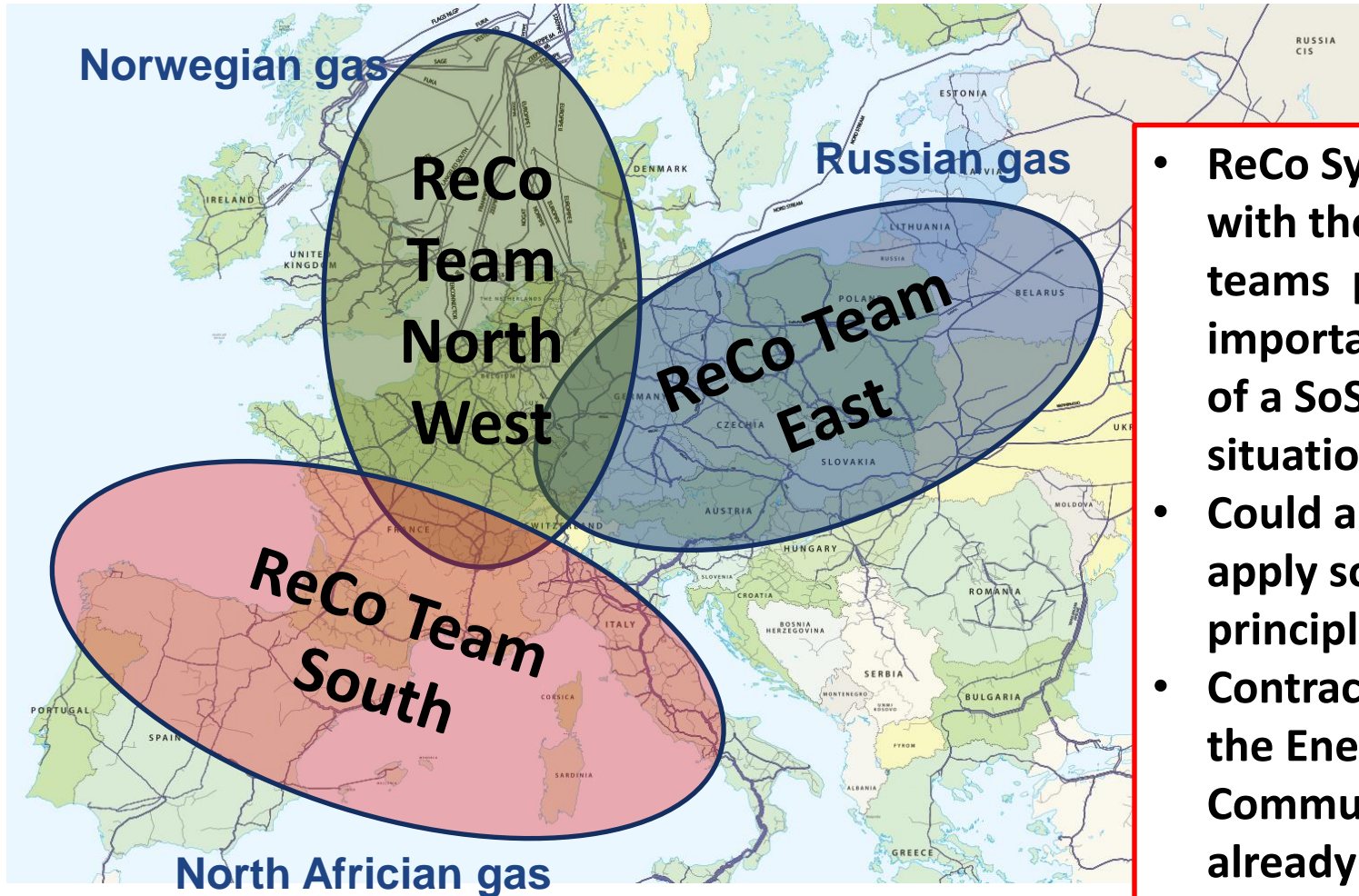
Tasks / Responsibilities



- ❑ ENTSOG proposed supply disruption scenarios which were validated by the Commission and Member States in the Gas Coordination Group (an iterative process to design the relevant scenarios).
- ❑ The ENTSOG Modelling tool was used for the identification of Member States that should cooperate along the relevant “Emergency Supply Corridors” assessing the impact of a supply disruption and assessing the role of alternative gas supply sources including the utilisation of storage facilities and LNG terminals.
- ❑ In contrast to supply standards or infrastructure standards, the purpose of these scenarios and the identification of Member States that should cooperate along the relevant “Emergency Supply Corridors” is not so much to prevent the disruption situation but rather to be best prepared to minimise impacts and cope with it.



ReCo System for Gas – Ideal operational complement for the ESC



- ReCo System for Gas with the different teams plays an important role in case of a SoS crisis situation
- Could also assist to apply solidarity principles
- Contracting parties to the Energy Community are partly already on-board



6.2 ENTSOG's first European-Wide simulation

Stefan Greulich - ENTSOG



6.3 Next steps for implementation of the SoS Regulation 2017/1938

Hendrik Pollex - ENTSG



Entry into force



- ***Adoption by the Council Monday 9 October***
- ***Publication in the Official Journal of the European Union (OJEU) 28 October***
- ***1 November 2017 entry into force***
- ***http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.280.01.0001.01.ENG&toc=OJ:L:2017:280:TOC***

Entry into force just ahead of the publication of ENTSG's Union-wide simulation



Timelines for Solidarity Arrangements



Solidarity Principles

- > **1 December 2017:** Commission delivers Guidance on Solidarity
- > **3 month after E-into-F:** Notification of MS definition of protected customers, annual gas consumption and % of gas consumption
- > **1 October 2018:** EC involvement if solidarity arrangements are not yet agreed
- > **1 December 2018:** Finalize arrangements, Adopt necessary measures, Application of Solidarity

Challenge: A lot of coordination needed in order to come to common understanding



Timelines for risk assessments (RA), Preventive and Emergency Plans

Preventive Action Plans and Emergency Plans

- > **1 October 2017:** Report to GCG the cooperation mechanism for RA
- > **1 November 2017:** Share updated National Data for RA; ENTSOG EU-wide simulation; Report to GCG on cooperation mechanism for Plans
- > **1 September 2018:** Notification of Regional and National RAs and exchange draft Plans and proposals for regional cooperation
- > **1 March 2019:** Notification of Preventive Action and Emergency Plans to the EC by Competent Authorities (CA)
- > **1 July 2019:** EC to assess plans taking into account discussion in Gas Coordination Group

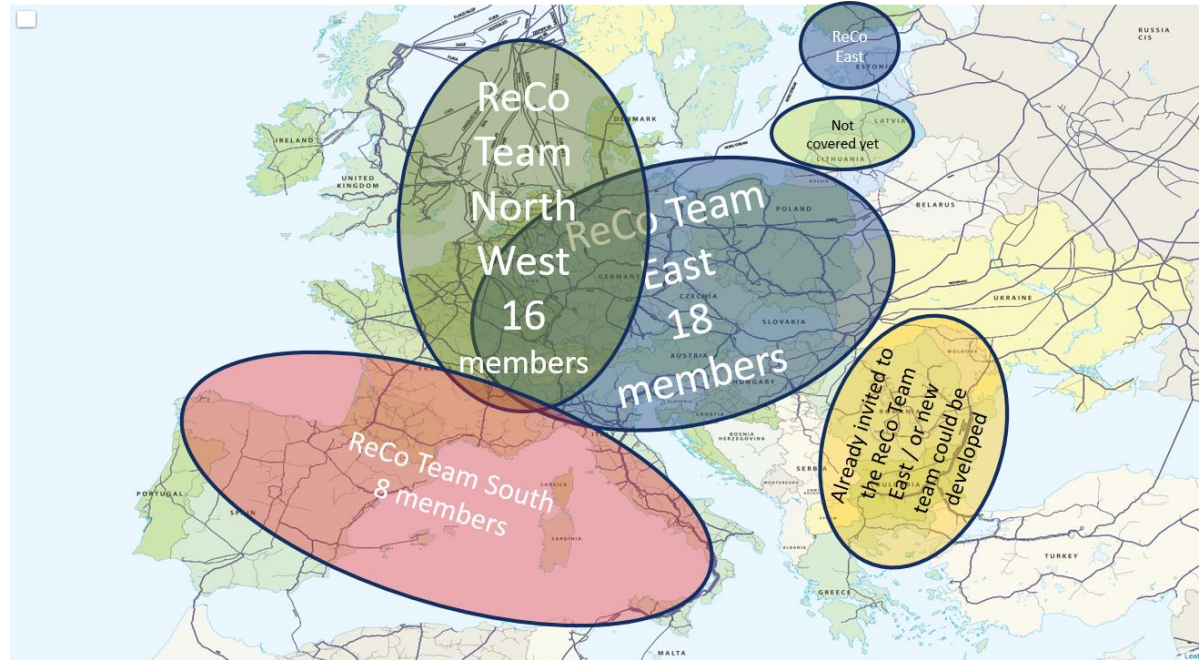
Challenge: A lot of coordination needed in order to come to common understanding



ReCo Invitation Letter to ENTSOG members

Regulation Art. 3 para. 5a:

In the event of a regional or Union emergency crisis, the transmission system operators shall cooperate and exchange information using the Regional Coordination System for Gas (ReCo System for Gas) where already established by ENTSOG. ENTSOG will inform the Commission and the competent authorities of the Member States concerned.



- ***For the time being 30 TSOs are members of one or more ReCo Teams***
- ***An Invitation Letter will be issued soon***
- ***Remaining TSOs are recommended to become member of the relevant ReCo Team***
- ***A fourth team for the West-Balkan area might be established***



ReCo as a Common Network Operation Tool (CNOT) for Emergency

- Regulation n°715/2009 of the European Parliament and of the Council, Article 8

3. The ENTSO for Gas shall adopt:

- a) **common network operation tools to ensure coordination of network operation in normal and emergency conditions, including a common incidents classification scale**, and research plans;

- *This is also in the focus of ACER*
- *Included in ENTSOGs AWP 2018 - to be delivered during 2018*



Thank You for Your Attention

Hendrik Pollex
Business Area Manager System Operation

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