# Network Code Interoperability and Data Exchange Rules

## 2nd Stakeholder Joint Working Session

Brussels – 28 Nov 2012


Network Code Interoperability
and Data Exchange Rules
2nd Stakeholder Joint Working Session
28 November 2012 at Thon Hotel EU in Brussels

# Welcome

# Network Code Interoperability and Data Exchange Rules

## 2nd Stakeholder Joint Working Session

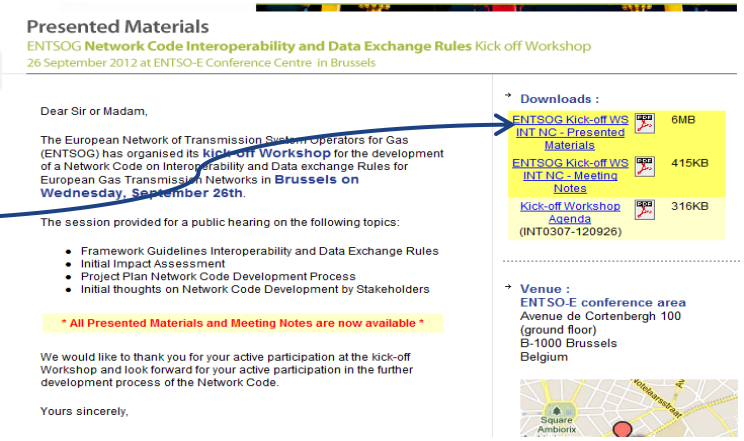
**Panagiotis Panousos**

**Business Area Manager, System Operation**

**Brussels – 28 Nov 2012**

# Introduction to 2nd SJWS

- Kick-off workshop 26th Sep:
  - ≈80 participants
  - Presented material & notes published
- Project Plan consultation:
  - 37 responses received
  - Non-confidential responses & report published
- 1st SJWS
  - 79 participants
  - Presented material & notes published
- 2nd SJWS
  - Agenda & pre-reading material published
- 3rd SJWS
  - Registration is open (till 7th Dec)



**Presented Materials**

ENTSOG **Network Code Interoperability and Data Exchange Rules** Kick off Workshop
26 September 2012 at ENTSO-E Conference Centre in Brussels

Dear Sir or Madam,

The European Network of Transmission System Operators for Gas (ENTSOG) has organised its **kick-off Workshop** for the development of a Network Code on Interoperability and Data exchange Rules for European Gas Transmission Networks in **Brussels on Wednesday, September 26th**.

The session provided for a public hearing on the following topics:

- Framework Guidelines Interoperability and Data Exchange Rules
- Initial Impact Assessment
- Project Plan Network Code Development Process
- Initial thoughts on Network Code Development by Stakeholders

*** All Presented Materials and Meeting Notes are now available ***

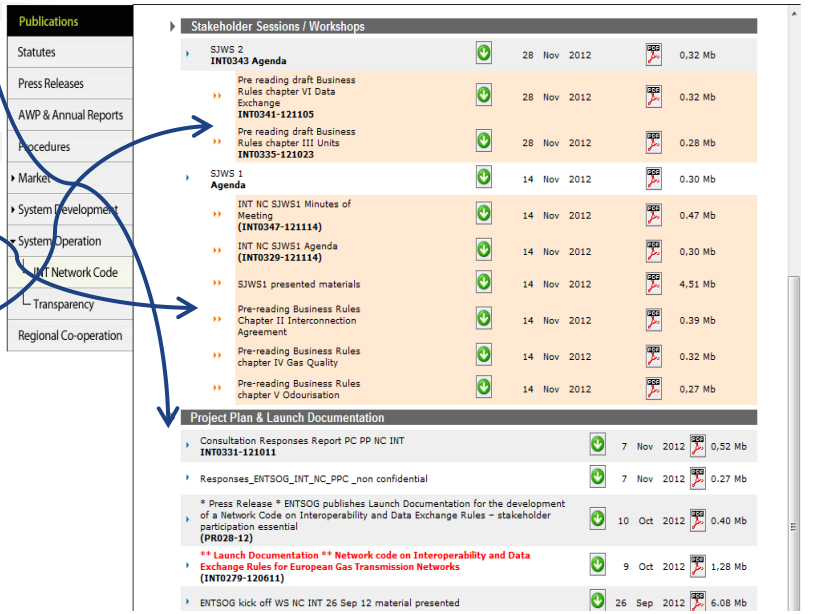
We would like to thank you for your active participation at the kick-off Workshop and look forward for your active participation in the further development process of the Network Code.

Yours sincerely,

**Downloads :**

| | |
|---|---|
| ENTSOG Kick-off WS INT NC - Presented Materials | 6MB |
| ENTSOG Kick-off WS INT NC - Meeting Notes | 415KB |
| Kick-off Workshop Agenda (INT0307-120926) | 316KB |

**Venue :**
**ENTSO-E conference area**
Avenue de Cortenbergh 100
(ground floor)
B-1000 Brussels
Belgium



Publications
- Statutes
- Press Releases
- AWP & Annual Reports
- Procedures
- Market
- System Development
- System Operation
  - INT Network Code
  - Transparency
- Regional Co-operation

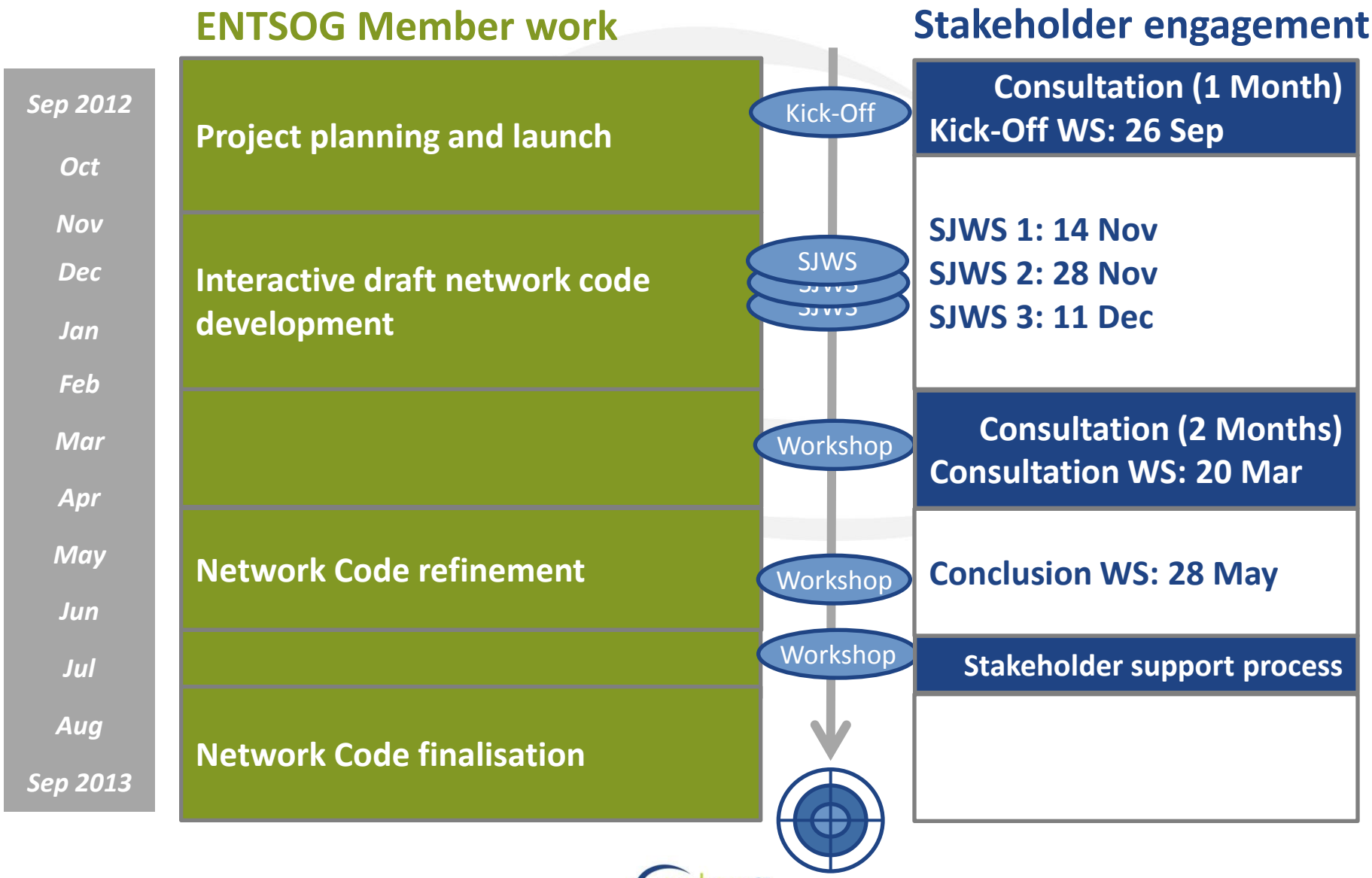
**Stakeholder Sessions / Workshops**

| | | | |
|---|---|---|---|
| SJWS 2 **INT0343 Agenda** | 28 Nov 2012 | | 0,32 Mb |
| Pre reading draft Business Rules chapter VI Data Exchange **INT0341-121105** | 28 Nov 2012 | | 0.32 Mb |
| Pre reading draft Business Rules chapter III Units **INT0335-121023** | 28 Nov 2012 | | 0.28 Mb |
| SJWS 1 **Agenda** | 14 Nov 2012 | | 0.30 Mb |
| INT NC SJWS1 Minutes of Meeting **(INT0347-121114)** | 14 Nov 2012 | | 0.47 Mb |
| INT NC SJWS1 Agenda **(INT0329-121114)** | 14 Nov 2012 | | 0,30 Mb |
| SJWS1 presented materials | 14 Nov 2012 | | 4,51 Mb |
| Pre-reading Business Rules Chapter II Interconnection Agreement | 14 Nov 2012 | | 0.39 Mb |
| Pre-reading Business Rules chapter IV Gas Quality | 14 Nov 2012 | | 0.32 Mb |
| Pre-reading Business Rules chapter V Odourisation | 14 Nov 2012 | | 0,27 Mb |

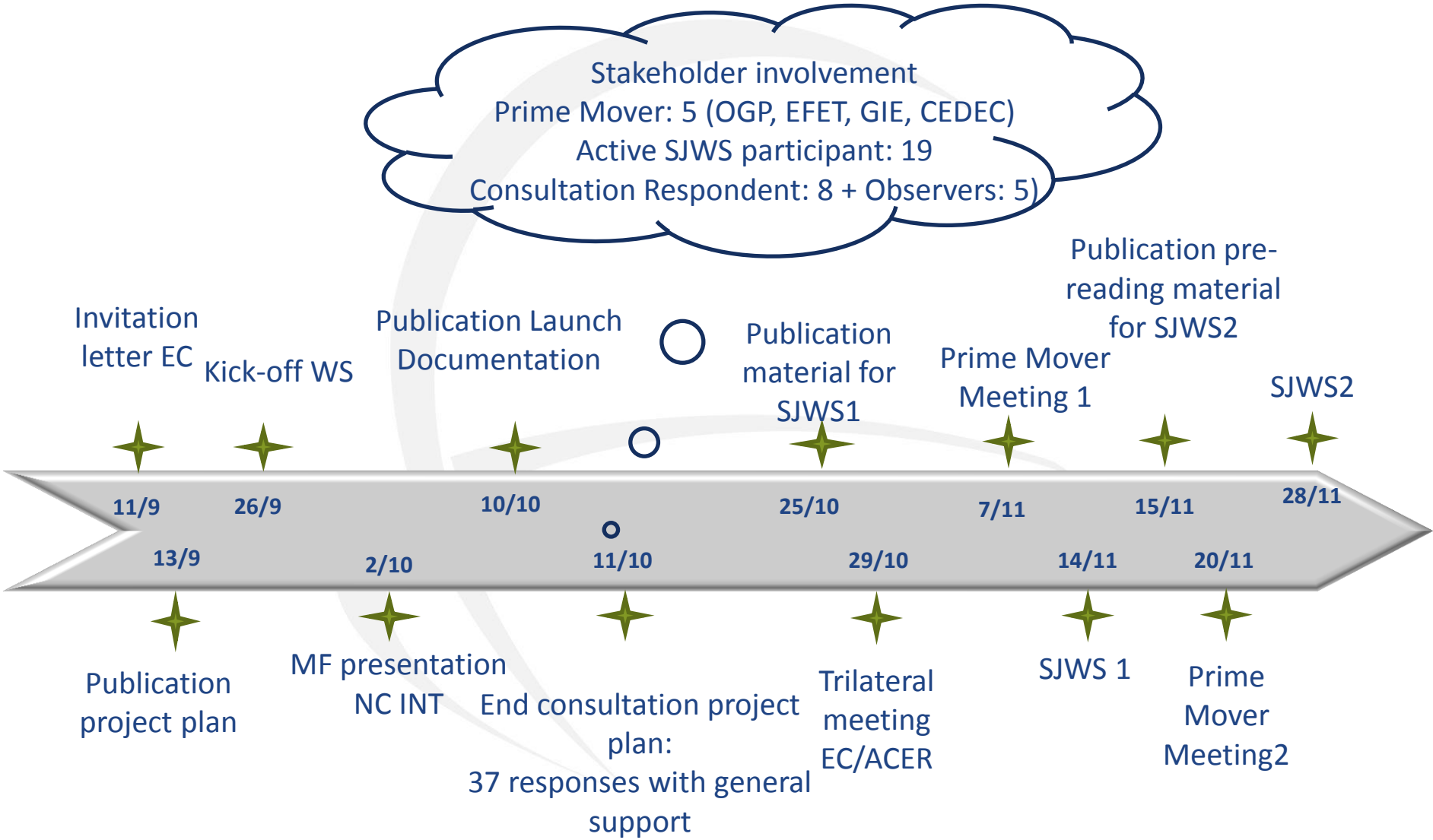
**Project Plan & Launch Documentation**

| | | | |
|---|---|---|---|
| Consultation Responses Report PC PP NC INT **INT0331-121011** | 7 Nov 2012 | | 0,52 Mb |
| Responses_ENTSOG_INT_NC_PPC _non confidential | 7 Nov 2012 | | 0.27 Mb |
| * Press Release * ENTSOG publishes Launch Documentation for the development of a Network Code on Interoperability and Data Exchange Rules – stakeholder participation essential **(PR028-12)** | 10 Oct 2012 | | 0.40 Mb |
| ** Launch Documentation ** Network code on Interoperability and Data Exchange Rules for European Gas Transmission Networks **(INT0279-120611)** | 9 Oct 2012 | | 1,28 Mb |
| ENTSOG kick off WS NC INT 26 Sep 12 material presented | 26 Sep 2012 | | 6.08 Mb |

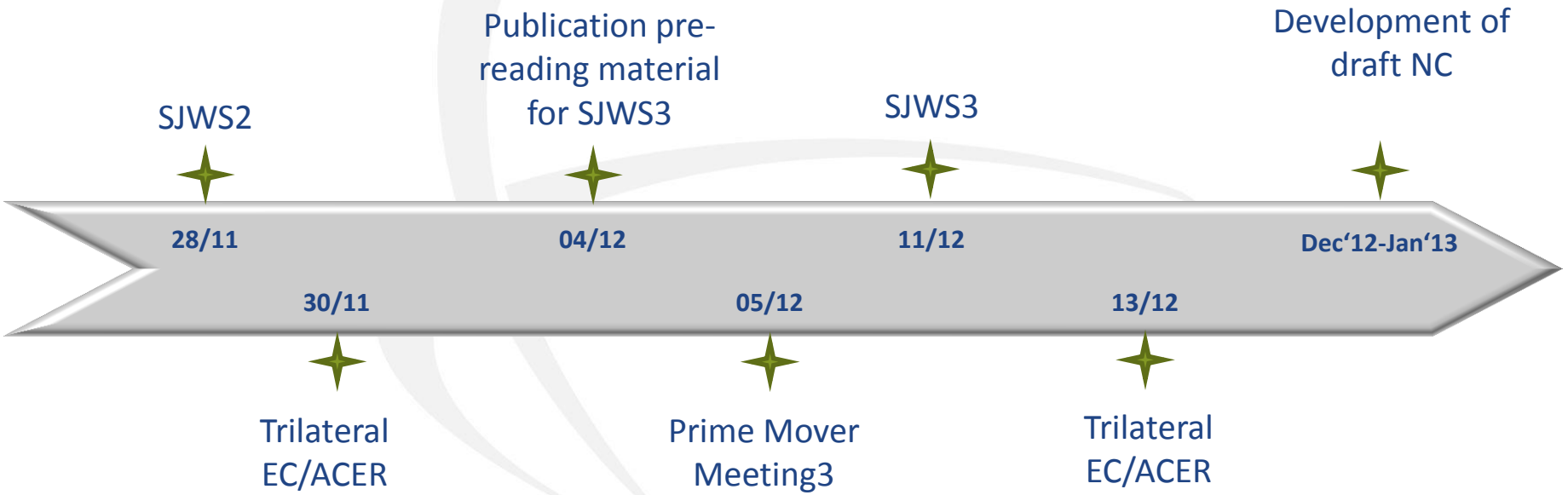
# Outlook NC INT Development Process



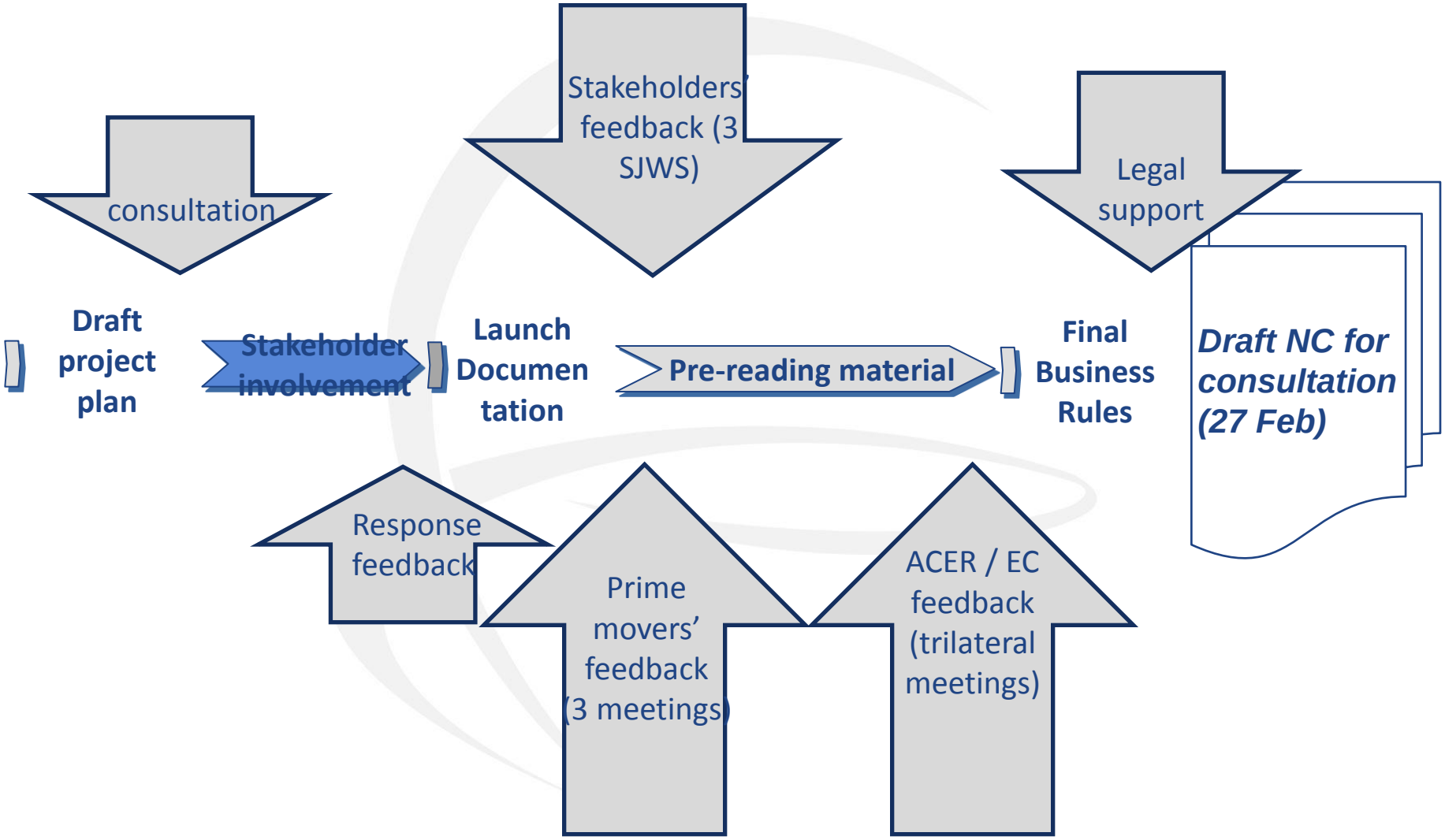
# NC development process: actual state



# NC development process: upcoming activity



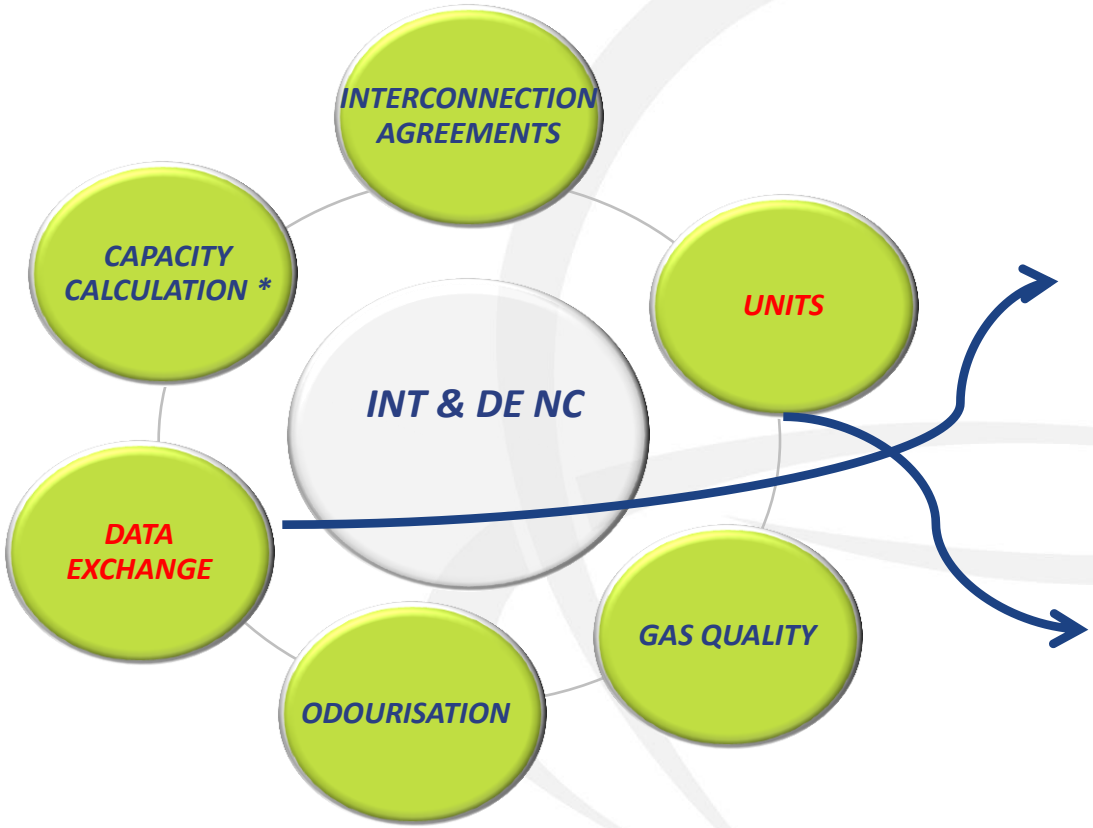
# Code development – from topic to draft text



# SJWS1 – input received

- Gas Quality and Odourization:
  - How CEN standards will become binding? Role Member States.
  - End–users: it is important to receive information on WI and GCV variations
  - Relevance of Long Term Monitoring?
  - Odourization: changing practices is MS responsibility (safety issue)
- Interconnection Agreements:
  - More transparency in developing/amending IA's
  - Impact Bundled products (Matching, …) to be clarified. Procedures to be defined based on bundled products
  - OBA as preferred allocation rule ?
  - List of standards for measurement principles

# Structure of event




**AGENDA**

*Please note all sections (other than the Welcome) will allow time for open discussion*

| No | Description | Time |
|---|---|---|
| 1 | **Opening** (ENTSOG: P. Panousos)<br>> Welcome / Introduction / Structure of Event<br>> Objectives | **10:00-10:15** |
| 2 | **Data Exchange Selection process**<br>(ENTSOG: Y. Jones/ D. Mazzotti/D. Serruys/C. Hamilton, J. De Keyser)<br>> Introduction: Data exchange and business processes<br>> Data Exchange – Network code Development process<br>> Communication Types and technologies | **10:15-11:15** |
| | **Coffee Break** | 11:15-11:35 |
| 3 | **Data Exchange Solutions and Roadmap**<br>> Selection criteria & Proposed communication<br>> Migration Roadmap proposal<br>> Stakeholders' view<br>EFET - F. Sleeuwagen<br>GIE – P. Palada<br>> Discussion | **11:35-13:30** |
| | **Lunch** | **13:30-14:30** |
| 4 | **Units** (ENTSOG: C. Hamilton)<br>> Proposed common set of Units<br>> Stakeholders' view<br>EFET - F. Sleeuwagen<br>> Discussion | **14:30-15:30** |
| | **Coffee Break** | **15:30-15:45** |
| 5 | **Closing remarks** (ENTSOG: P. Panousos) | 15:45-16:00 |
| | | |

* EC is considering making use of its right of proposal to put forward a text for comitology in NC CAM.

# Objectives of SJWS

> *"The SJWS are working sessions which will enable exchange and development of ideas for inclusion in the network code. During this phase of the network code development activity ENTSOG envisages wide interaction with all participants."*

***Detailed thoughts and positions are to be discussed during the 3 SJWS***

IMPORTANT STAKEHOLDER INVOLVEMENT -> REFINEMENT DRAFT BUSINESS RULES

# Thank You for Your Attention

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# Data exchange

## 2nd Stakeholder Joint Working Session

**Jef De Keyser, ENTSOG**

**Yvette Jones, Gaslink**

**Dirk Serruys, Fluxys**

**Daniele Mazzotti, SNAM**

**Colin Hamilton, National Grid**

**Brussels – 28 Nov 2012**

# Data Exchange - Agenda

1. **Introduction: Data Exchange and Business Processes**
2. Data Exchange Network code development
3. Data Exchange Solutions
4. Selection criteria for Data Exchange solution
5. Implementation Roadmap
6. Questions & Answers

# Data Exchange

## INTRODUCTION: Scope of Network Code INTEROPERABILITY

- **Covered** by this Network Code

1. **Data Exchange:**

→Define the **HOW** = define the communication types between TSOs and their Counterparties

2. **Interoperability:**

→Define the **WHAT** for the INT business process(es)
Identify the data that have to be exchanged for the Matching process

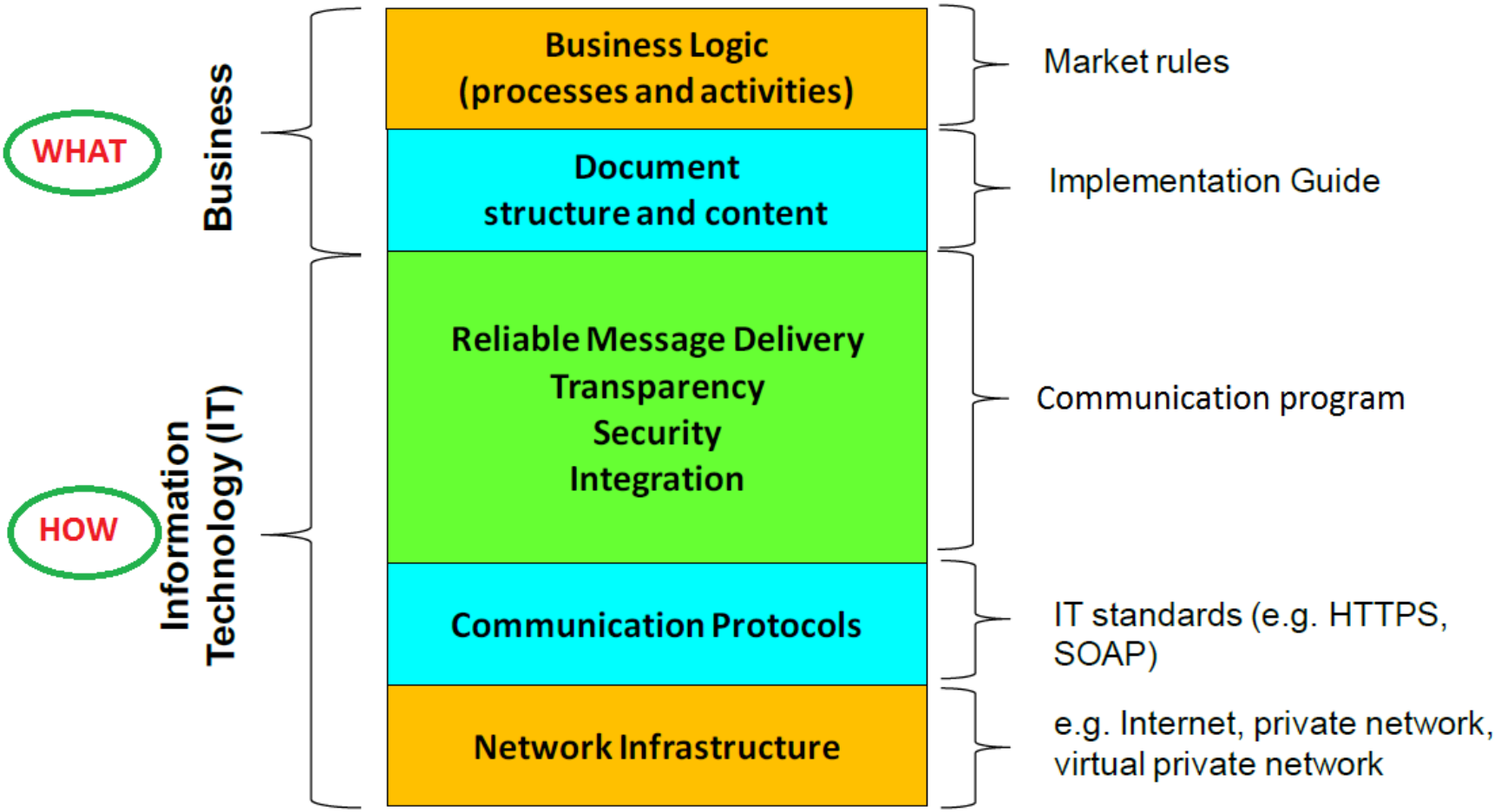
- This Network Code is the **technology basis** for the development of the Data Exchanges for the **other network codes** (CAM, BAL, …)

<u>Proposed development process for Data Exchanges of other NCs:</u>

- Define communication requirements

# Data Exchange

## INTRODUCTION: WHAT & HOW



# Data Exchange

## Proposal – Development process for Data Exchanges

### 1. Development Network Code

- NC development (ENTSOG & Stakeholders)
- Selection of the appropriate communication tools (ENTSOG)

→ **Network Code**

### 2. Data solution development

→ **Based on NC:** define Business Requirement Specifications (BRS)

- Business Process Model (Actors, Systems, Use Case Diagram)
- Business Requirements (Text Document)
- Functional Specification (Sequence & Workflow Diagrams)
- Information model (identify the required business information for every data flow)

→ENTSOG (incl. validation process)

→ **Based on the BRS**: develop implementation guideline document

- Define the detailed structures for every data flow (Edig@s-XML)
- Define implementation recommendations
- Update document change log

→ **Implementation Guidelines**

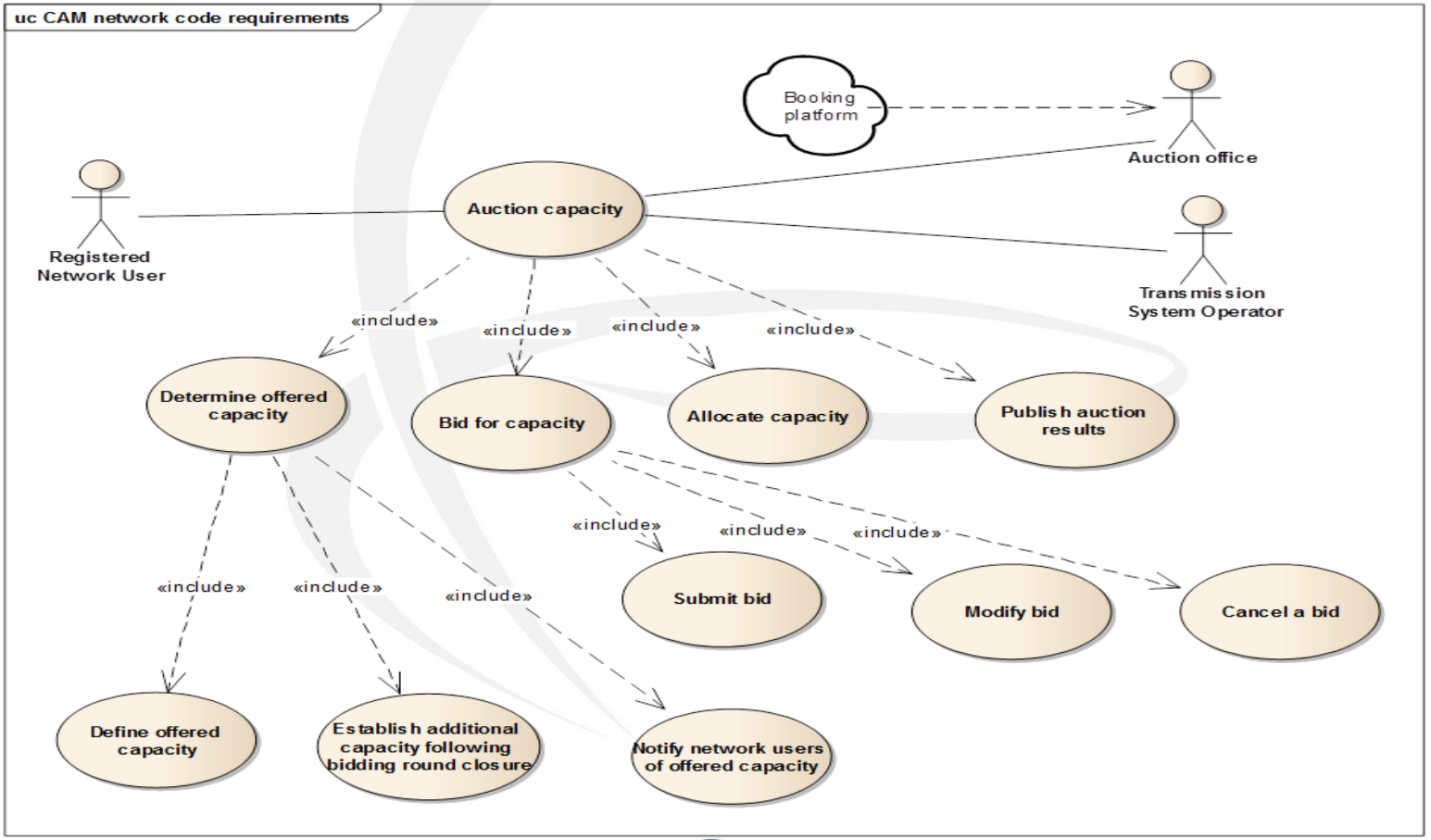
- **Validation period** (publication draft version on ENTSOG website & stakeholder consultation)

### 3. Publication of Implementation Guidelines

# Data Exchange

## Example of BRS (Business Requirement Development CAM)

1. **Data solution development:** Business Process Model
   (Actors, Systems, Use Case Diagram)

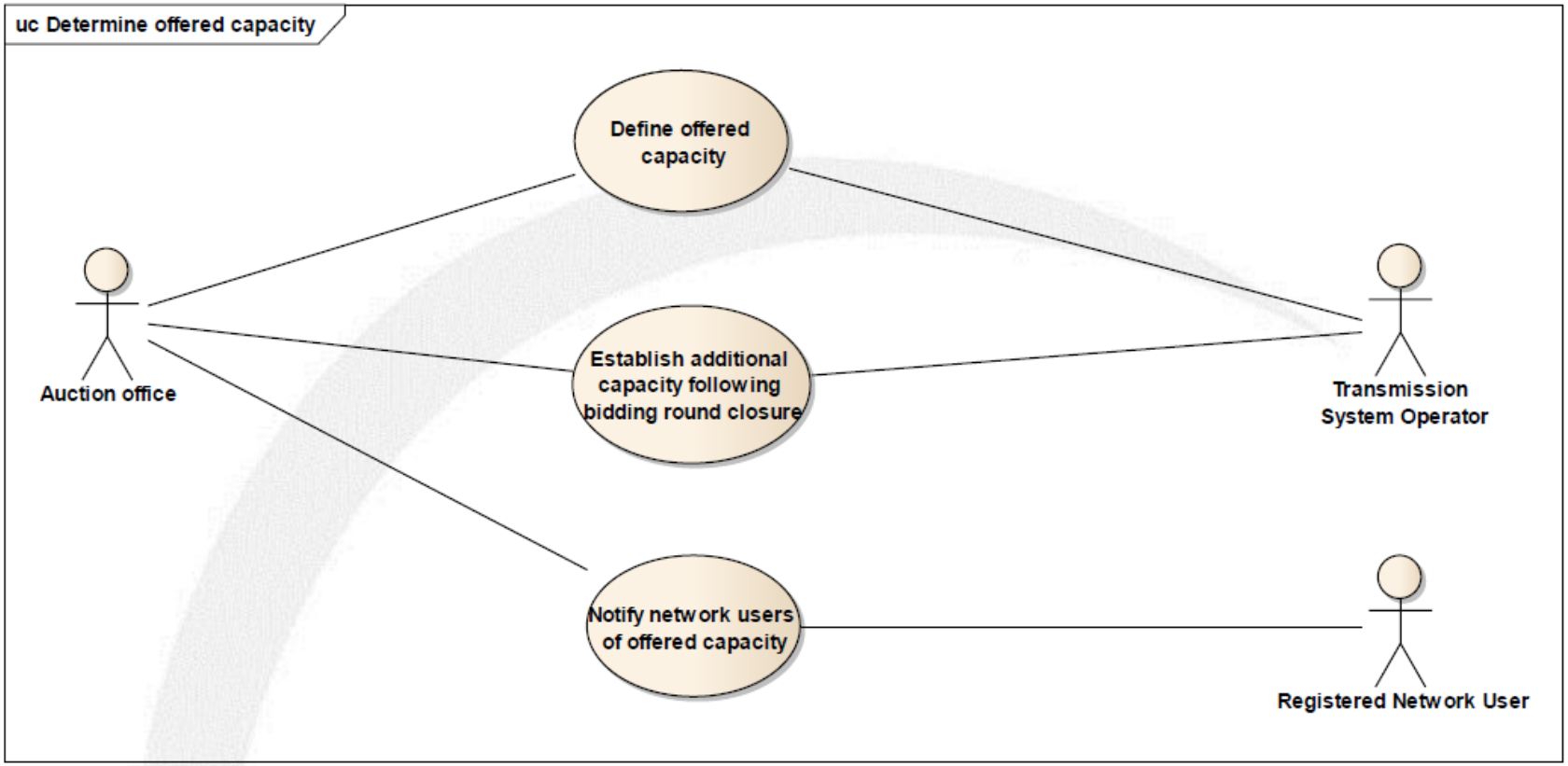


# Data Exchange

## Example of BRS (Business Requirement Development CAM)

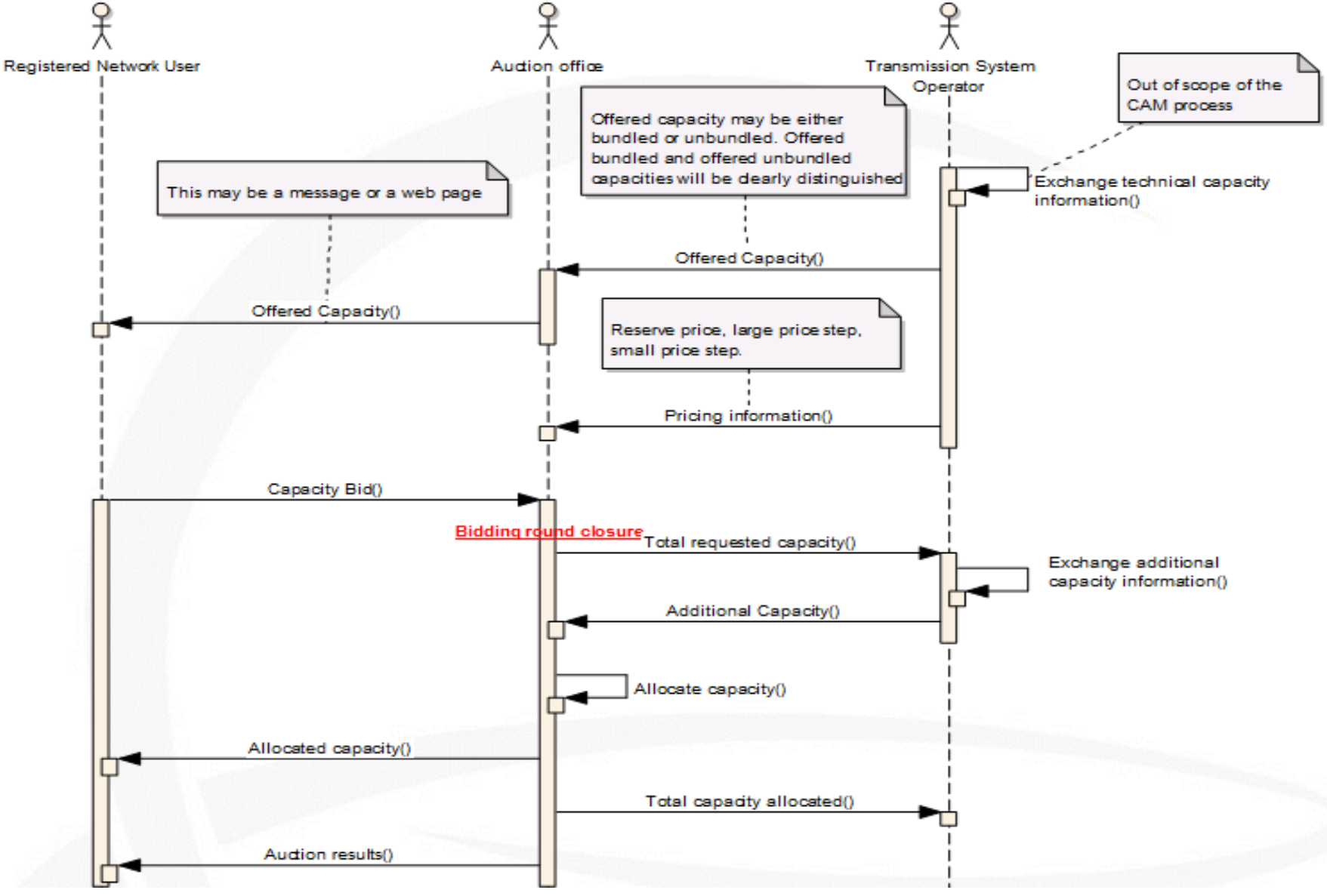
2. **Data solution development:** Business Requirements (use case)

Determine the capacity that is presented to the market for auction.



# Data Exchange

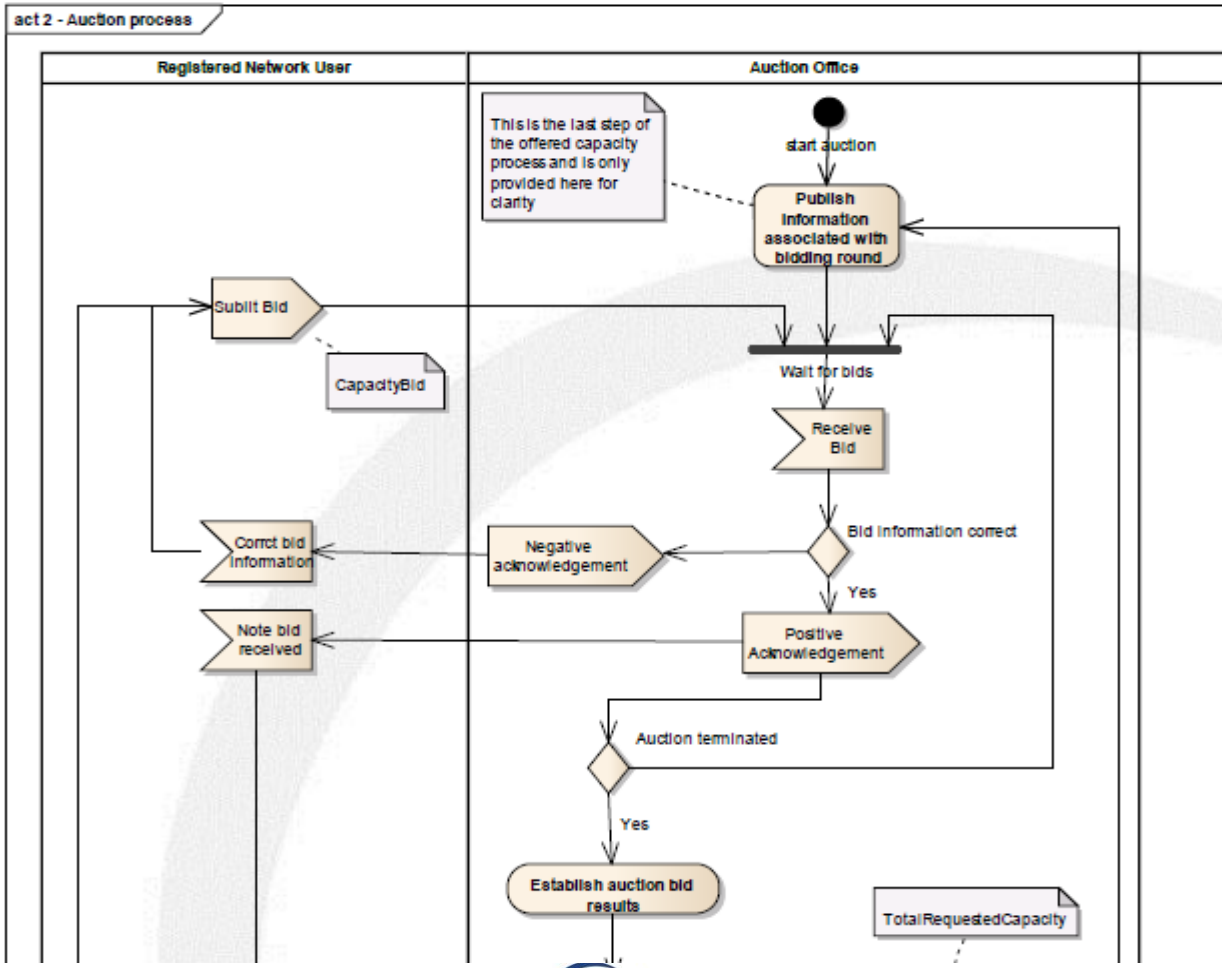
## Example of BRS (Business Requirement Development CAM)



# Data Exchange

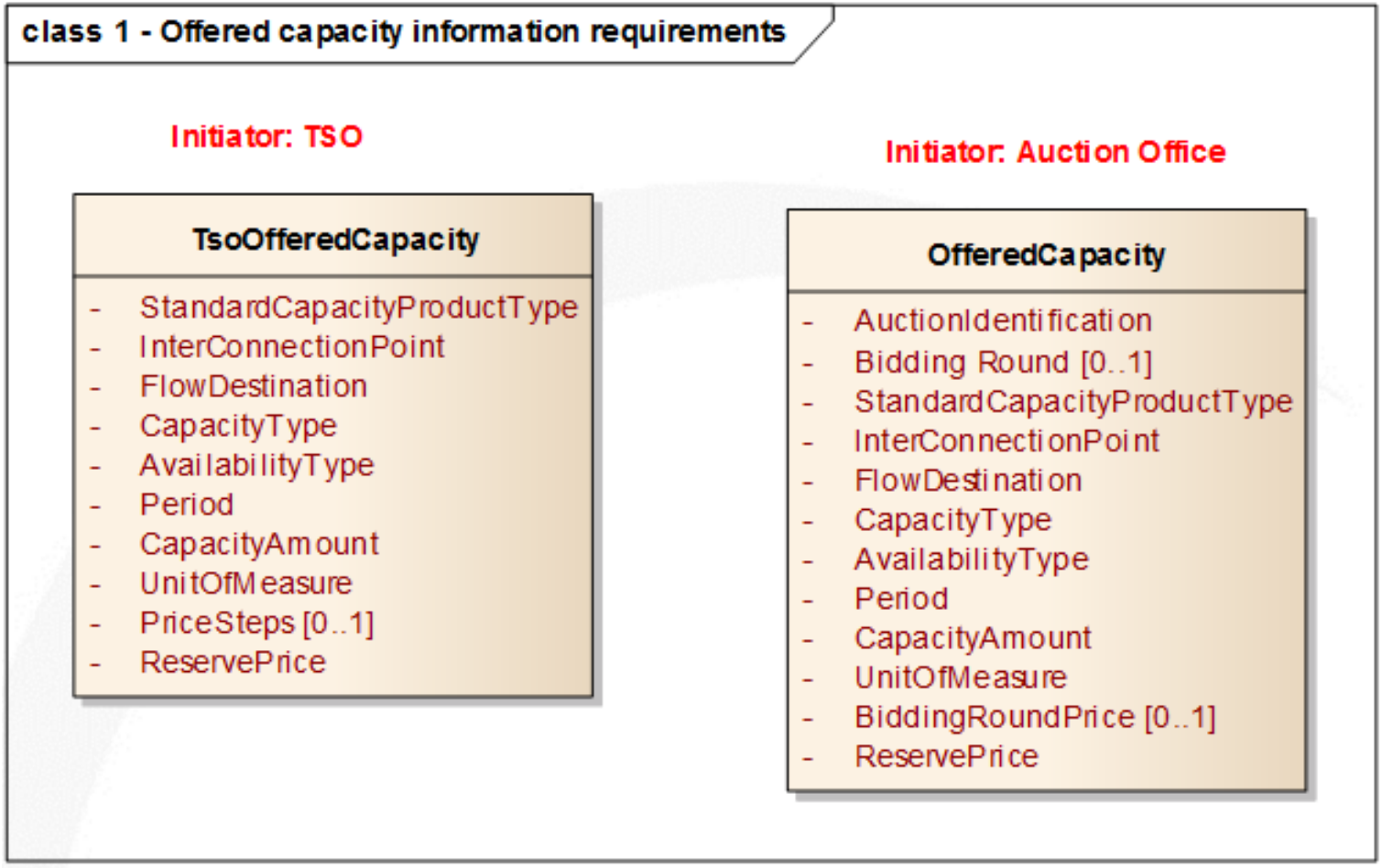
## Example of BRS (Business Requirement Development CAM)

4. Data



# Data Exchange

## Example of BRS (Business Requirement Development CAM)



# Data Exchange

## Example of BRS

**6. Next steps**

- Develop the detailed message specifications (ENTSOG & EDIGAS WG)
- Add implementation details
- Produce a complete Implementation Guideline

- **Validate** the Implementation Guideline (ENTSOG + Stakeholders)
  - Publish draft version
  - Stakeholder session with presentation & feedback
  - Update Implementation Guideline (review if required)

- **Publish** the implementation Guideline
  - General overview
  - Functional definition
  - Workflow scenarios
  - References
  - Information model
  - XML implementation
  - Document change log

# Data Exchange - Agenda

1. Introduction: Data Exchange and Business Processes
2. **Data Exchange Network code development**
3. Data Exchange Solutions
4. Selection criteria for Data Exchange solution
5. Implementation Roadmap
6. Questions & Answers

# Data Exchange

## What is Data Exchange?

- Example 1 – nomination:
  - Data Exchange is the method used by a **NU** to **inform** a **TSO** of the **quantity** of gas that he wants to transport from A to B in the network
- Example 2 – capacity auction bid:
  - Data Exchange is the method used by a **NU** to **inform** a **Capacity Auction platform** of the transport **capacity** he wants to buy in the network

→ Parties & Data

# Data Exchange

**Reasons for harmonisation**:

- Operational efficiency
  - Facilitate entry of new market participants
    - Common technologies can be used to communicate with all TSOs in EU
  - Reduction of maintenance cost
    - Reduce number of Data Exchange technologies
    - More efficient use of IT staff to keep systems operational
  - Improve stability and availability by focussing on one technology

  →Harmonisation of the data exchanges

- Modeling of Business Processes
  - Same (business) rules for all users

  → Harmonisation of Business Rules for the same business process

# Data Exchange

## *Framework Guidelines*

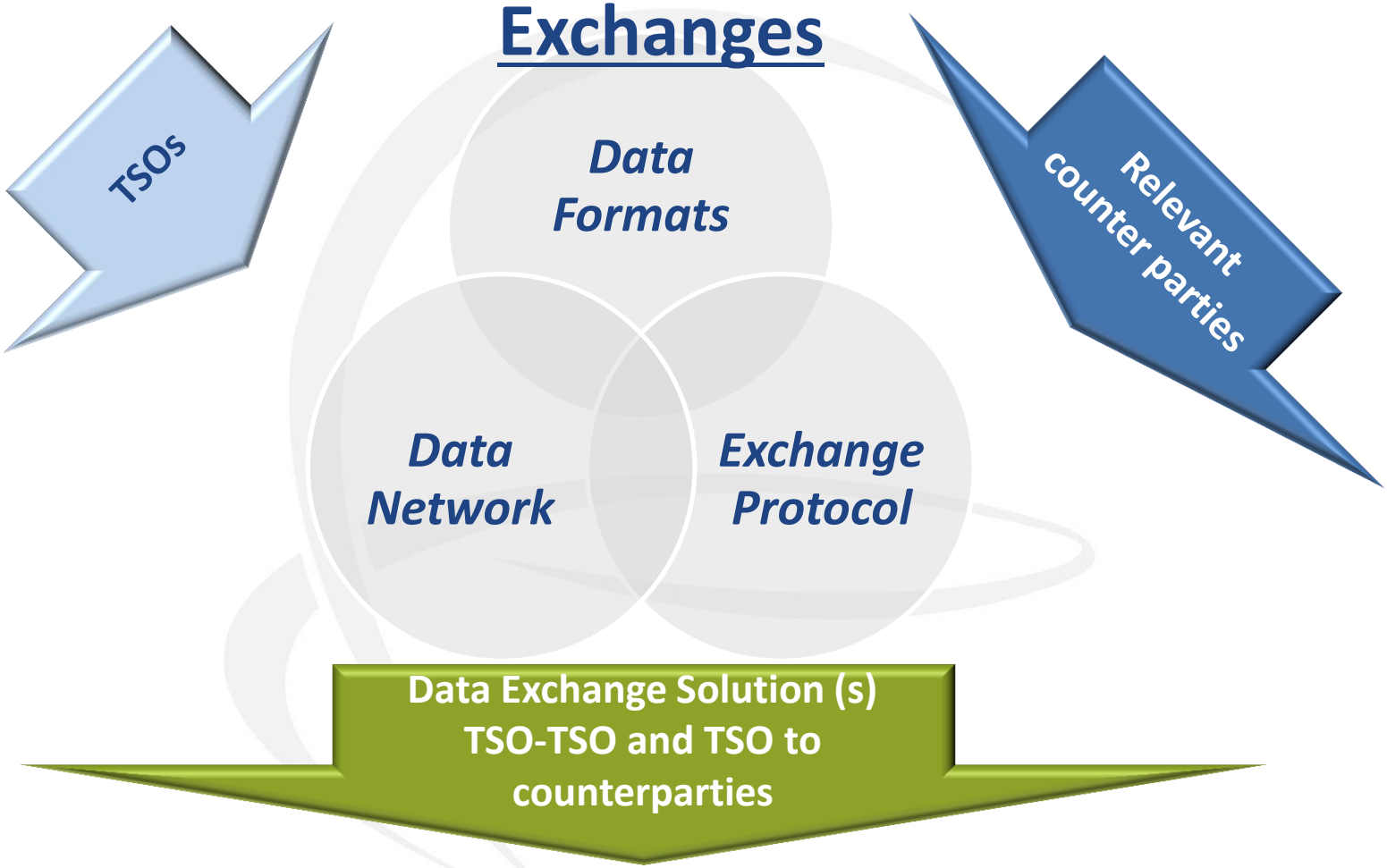
6. Data exchange

Without prejudice to existing legislation, these Framework Guidelines aim at extending **harmonisation of data exchange solutions** to all **areas** where **TSOs** exchange data among **themselves** or communicate data to **counterparties**.

The Network Code shall foresee a common set of data formats, data network and exchange protocol ('data exchange solution') for the **reliable, secure and smooth** exchange of information among TSOs, as well as from TSOs to relevant counterparties.
The selection of such a data exchange solution by ENTSOG shall be based on a **cost-benefit** analysis subject to **public consultation**. This analysis, as well as the subsequent **selection process** will take into account in particular the following considerations:

- best available technologies, particularly in terms of security and reliability;
- the actual spread (whether the solution considered is widely used) of the solutions considered;
- the volume of data traffic required to transfer information;
- the costs of first introduction and cost of operation;
- the potential for discrimination of small shippers or new market entrants;
- the synergies with current electricity data exchange rules;
- the compatibility with counterparties' data exchange solutions.

# Data Exchange- Harmonisation of Data Exchanges




*Network code on Interoperability - Data Exchange section*

# Data Exchange - Scope

*Without prejudice to existing legislation, these framework guidelines aim at extending harmonisation of Data Exchange solutions to all **areas** where TSOs exchange data among themselves or **communicate** data to **counterparties**.*

- Areas and Counterparties

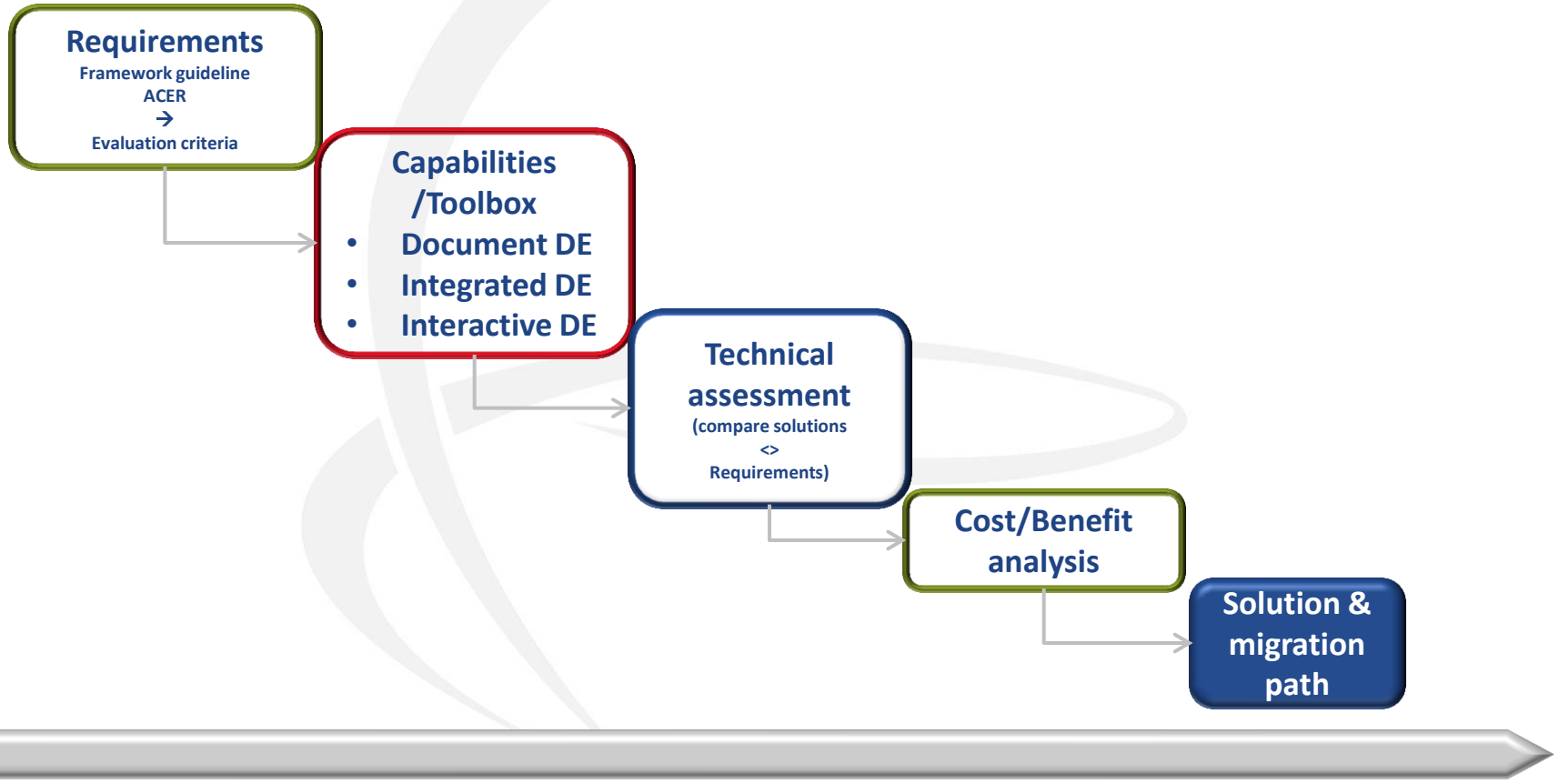
  - Areas
    → To cover all data exchanges required for the **Network Codes** and **Guidelines** adopted by EC

  - Communication
    → Limited to **electronic data exchanges**

  - Counterparties
    → All **parties** that **exchange data with TSOs**

# DATA EXCHANGE – Selection Process

***The selection of any solution can only come after following the sequence:***



# Data Exchange - Agenda

1. Introduction: Data Exchange and Business Processes
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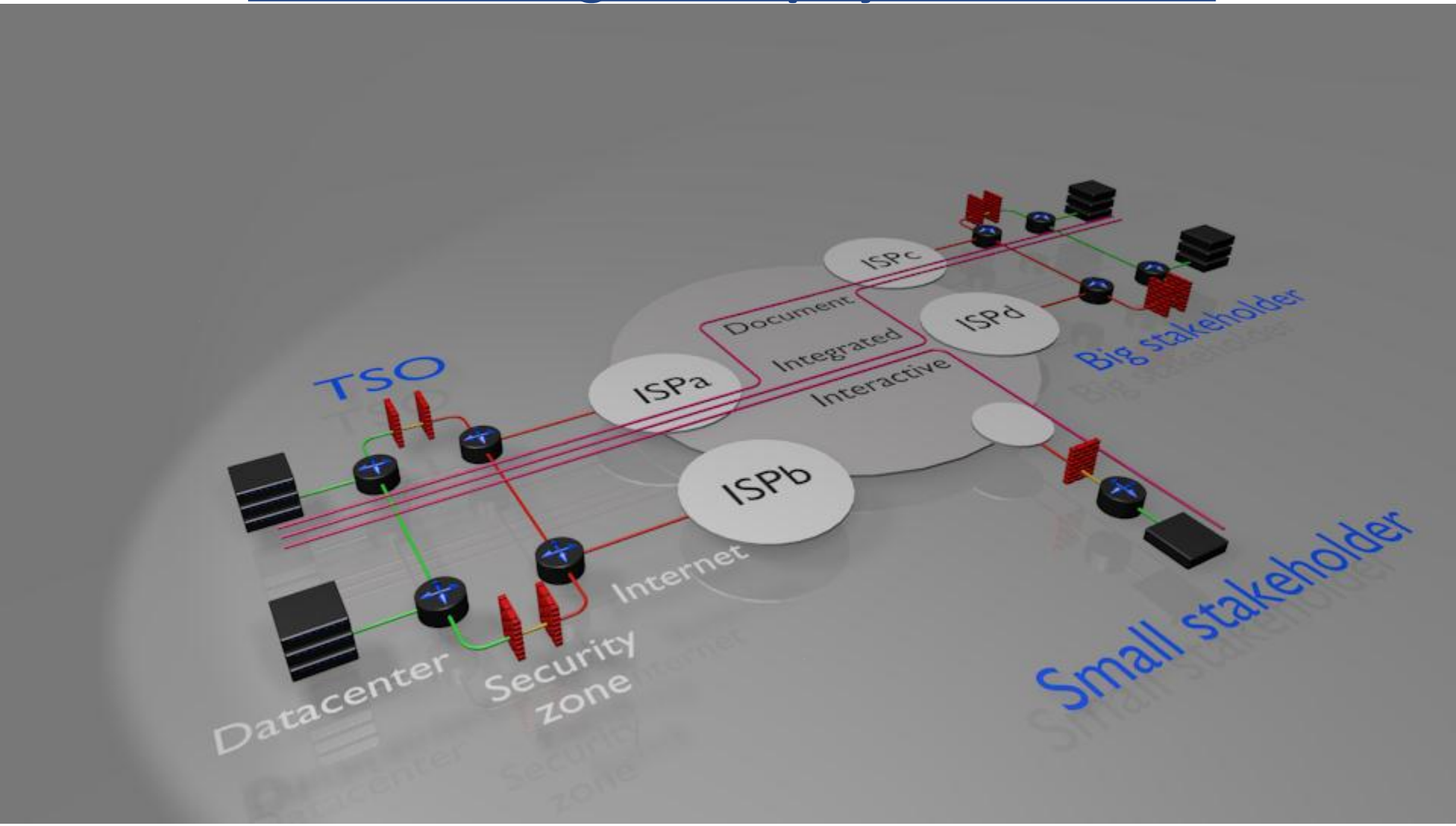
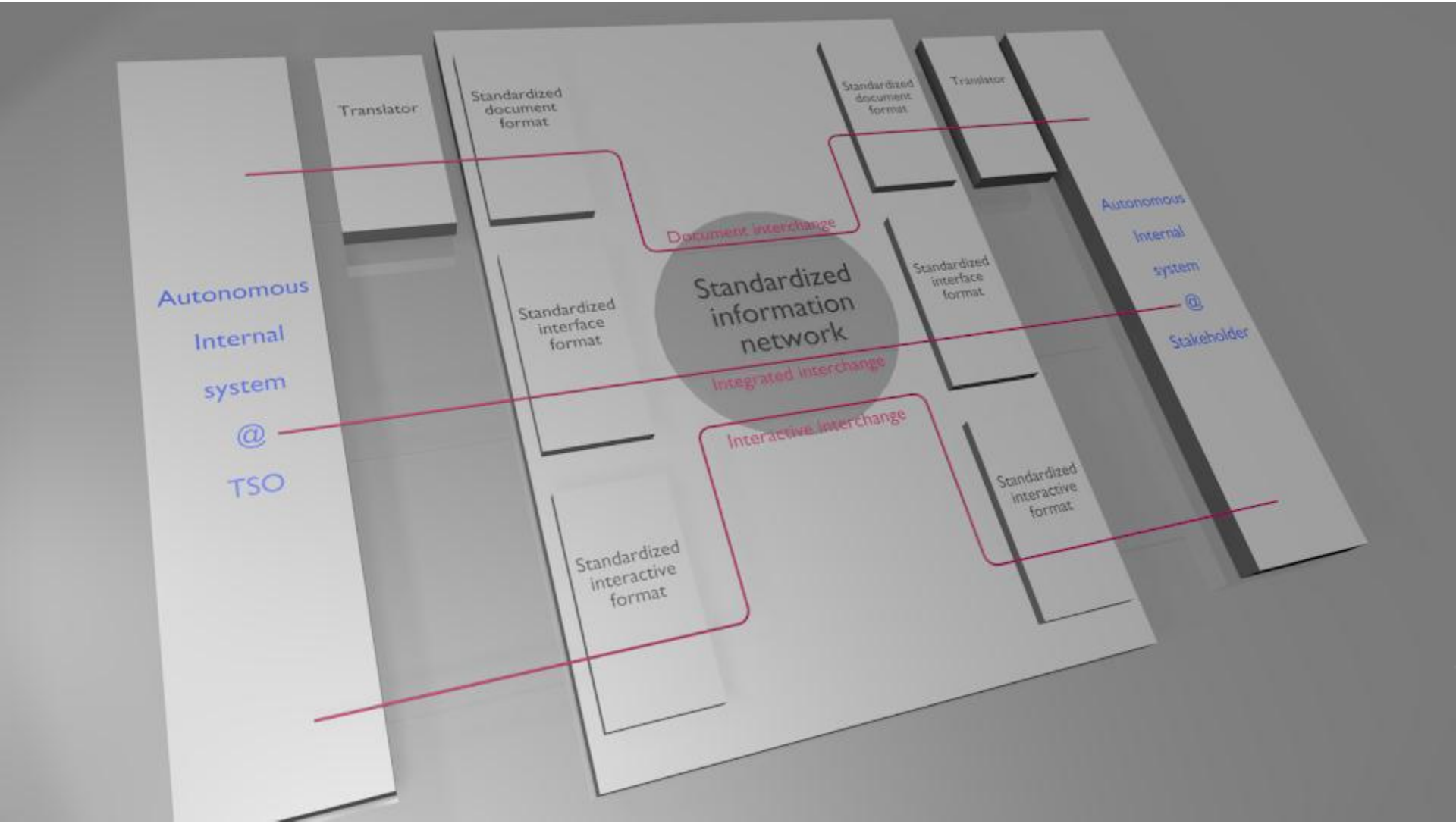
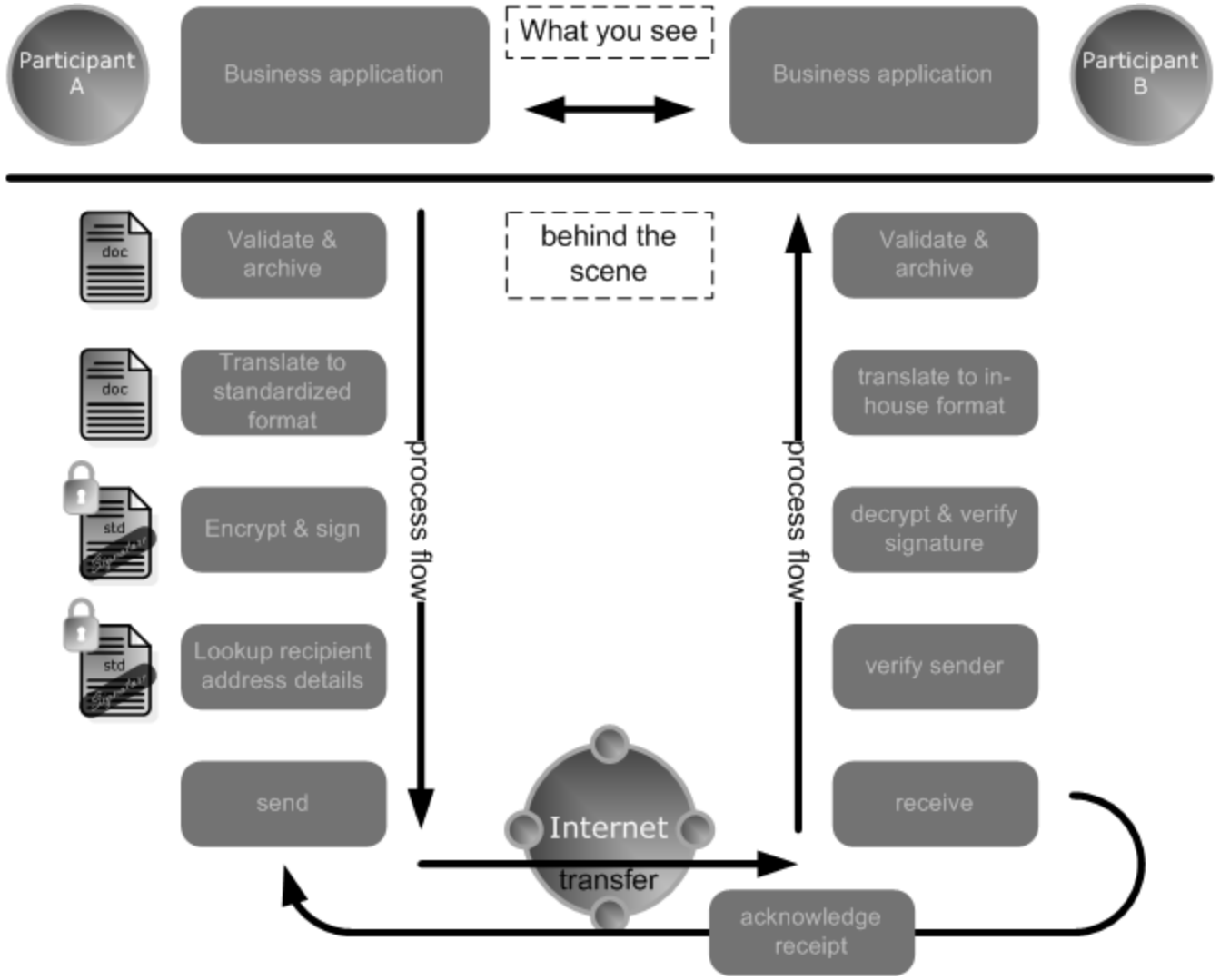
# Data Exchange : ICT physical context



# Data Exchange : ICT logical context



# DATA EXCHANGE



# Data Exchange – Framework Guidelines

*The network code shall foresee a common set of **data formats**, data **network** and **exchange protocol** ('Data Exchange solution') for the **reliable, secure and smooth** exchange of information among TSOs, as well as from TSOs to relevant counterparties.*

- Data Exchange Solutions
  - Data Exchange **types**
  - Data **network**
  - Data Exchange **protocols**
  - Data **formats**

# Data Exchange

> **Data Exchange Types**

**“Toolbox”**

- Document based Data Exchange

- Integrated Data Exchange

- Interactive Data Exchange

# Data Exchange

> **Document based** Data Exchange

- **File transfer** between IT systems
- The smallest unit of information transfer is a **'document'**
- Adheres to the concept of 'loose' coupling
- **Traceability** (documents)
- Typically needs **translator** software

> **Document based** Data Exchange - Solutions

- ebXML, ebMS
- Applicability Statement 2 (AS/2)
- Applicability Statement 4 (AS/4)

# Data Exchange

- **Integrated** Data Exchange

  - Direct exchange of information between applications
  - Initiator can be the sender or requestor of the information
  - Used for big data volumes & time critical processes
  - Offers flexible query possibilities

    → Frequently changing data structures

# Data Exchange

> **Interactive** Data Exchange

Exchanges of information based on an **interactive dialog** controlled by the initiator of the communication

- Not suited for big data volumes
- Alternative solution for small users
- Big overhead and risk for human errors
- Manually upload or download of files possible

> **Interactive** Data Exchange solution: Web browser

- Low (no) implementation cost for end-users (browser is standard offered in PC software)
- Quick set-up for operation

# Data Exchange

> Data **Network**

- Business requirements
  - Accessibility for all parties involved in the international gas business
  - Operator independent network connections due to the geographical spread of connected user
  - Easy and fast, flexible and worldwide accessibility
  - Reliability and up-time of the network

- Technical solutions
  - Public networks
    - X25 (outdated)
    - **Internet**
  - Private networks
    - ISDN (digital telephone lines)

# Data Exchange

- Data **Formats**

  - **Structure** formats → How the file is structured IT wise

    - CSV – comma separated values
    - XLS files (excel)
    - EDIFACT (electronic data interchange for administration commerce and transport) – UN
    - XML - Extensible Markup Language

  - **Content** formats → How the content is organized business wise

    - Free text (no content structure)
    - EDIGAS

# Data Exchange

> **Data Formats – Example XML-EDIGAS format for Nomination**

```
<Nomination Version="EGAS40" Release="2">
        <Identification v="NOMINT1111"/>
        <Type v="01G"/>
        <CreationDateTime v="2012-09-30T11:18:00Z"/>
        <ValidityPeriod v="2012-10-01T04:00Z/2012-10-02T04:00Z"/>
        <ContractReference v="STAIZTSHIPPERACCOUNT"/>
        <ContractType v="CT"/>
        <IssuerIdentification v="SHIPPER" codingScheme="321"/>
        <IssuerRole v="ZSH"/>
        <RecipientIdentification v="TSO" codingScheme="321"/>
        <RecipientRole v="ZSO"/>
        <ConnectionPointInformation>
                <LineNumber v="1"/>
                <ConnectionPoint v="IZT" codingScheme="321"/>
                <AccountIdentification v="AB999" codingScheme="321"/>
                <AccountRole v="ZES"/>
                <Period>
                        <TimeInterval v="2012-10-01T04:00Z/2012-10-02T04:00Z"/>
                        <Direction v="Z02"/>
                        <Quantity v="1000"/>
                        <MeasureUnit v="KW1"/>
                </Period>
        </ConnectionPointInformation>
</Nomination>
```

# Data Exchange

## > Data Formats – Example Excel format for Nomination

| NOMINT | Gas Day | 15.08.2013 | 15.08.2013 | 15.08.2013 | 15.08.2013 | 15.08.2013 | 15.08.2013 |
|---|---|---|---|---|---|---|---|
| | STS (priority) | | | | | | |
| | NAD (internal shipper) | 99Y-TEST---1---3 | 99Y-TEST---1---3 | 99Y-TEST---2---Z | 99Y-TEST---2---Z | 99Y-TEST---2--1V | 99Y-TEST---2--1V |
| | LOC (location) | 99Z0000000000099 | 99Z0000000000099 | 99Z0000000000099 | 99Z0000000000099 | 99Z0000000000099 | 99Z0000000000099 |
| | NAD (external shipper) | 99Y-TEST---1---3 | 99Y-TEST---1---3 | 99Y-TEST---2---Z | 99Y-TEST---2--1V | 99Y-TEST---2--1V | 99Y-TEST---2--1V |
| | RFF (reference) | | | | | | |
| | QTY (direction) | Z03 | Z03 | Z03 | Z03 | Z03 | Z03 |
| | Version | 1 | 1 | 1 | 1 | 1 | 1 |
| | NOMRES-Revision | | | | | | |
| | Comments | | | | | | |
| checksum | kWh | 2400000 | 2400000 | 720000 | 720000 | 480000 | 480000 |
| from | until | kWh | kWh | kWh | kWh | kWh | kWh |
| 6:00 | 7:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 7:00 | 8:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 8:00 | 9:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 9:00 | 10:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 10:00 | 11:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 11:00 | 12:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 12:00 | 13:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 13:00 | 14:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 14:00 | 15:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 15:00 | 16:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 16:00 | 17:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 17:00 | 18:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 18:00 | 19:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 19:00 | 20:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 20:00 | 21:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 21:00 | 22:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 22:00 | 23:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 23:00 | 0:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 0:00 | 1:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 1:00 | 2:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 2:00 | 3:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 3:00 | 4:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 4:00 | 5:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| 5:00 | 6:00 | 100000 | 100000 | 30000 | 30000 | 20000 | 20000 |
| | Sum | 2400000 | 2400000 | 720000 | 720000 | 480000 | 480000 |


# Coffee break

# Data Exchange - Agenda

1. Introduction: Data Exchange and Business Processes
2. Data Exchange Network code development
3. Data Exchange Solutions
4. **Selection criteria for Data Exchange solution**
5. Implementation Roadmap
6. Questions & Answers

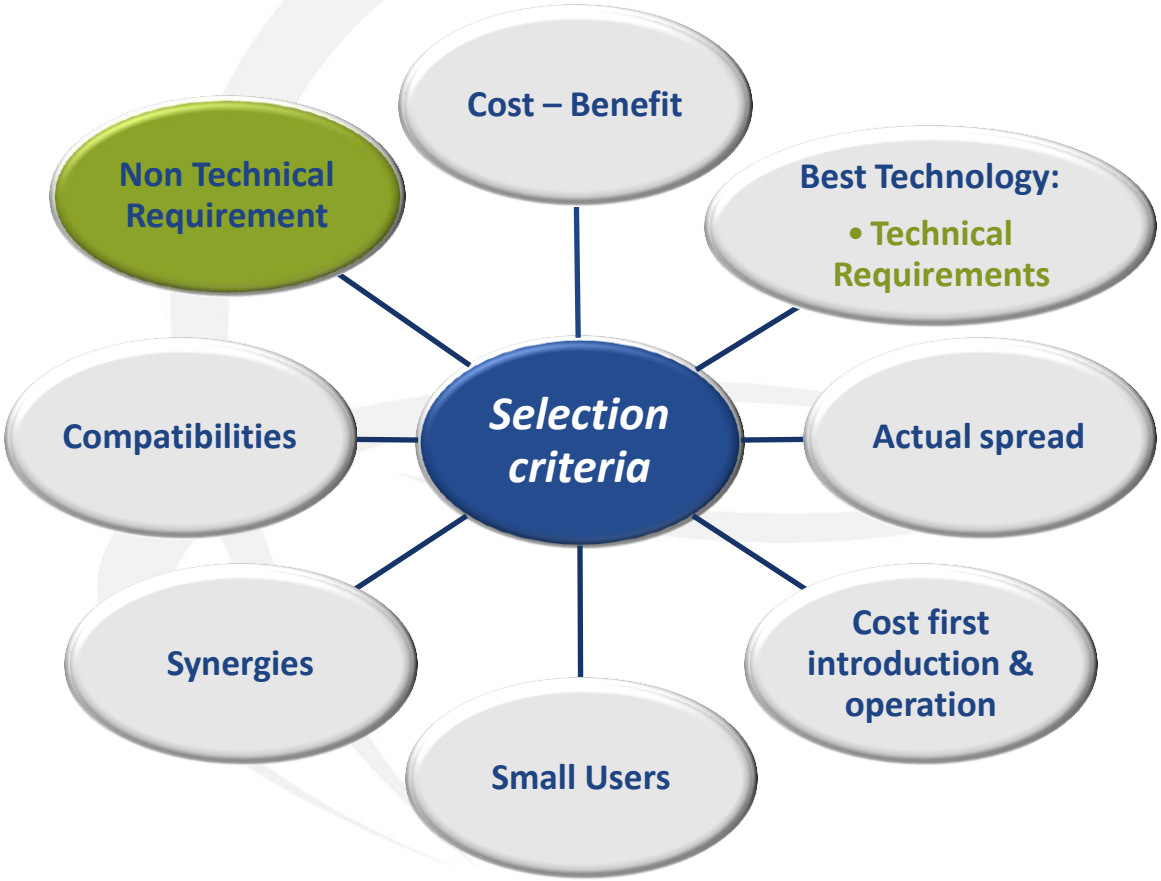
# Data Exchange – FG – Selection of a solution

*The selection of such a Data Exchange solution by ENTSOG shall be based on a cost-benefit analysis subject to public consultation. This analysis, as well as the subsequent selection process will take into account in particular the following considerations:*

- *best available technologies, particularly in terms of security and reliability;*
- *the actual spread (whether the solution considered is widely used) of the solutions considered;*
- *the volume of data traffic required to transfer information;*
- *the costs of first introduction and cost of operation;*
- *the potential for discrimination of small shippers or new market entrants;*
- *the synergies with current electricity Data Exchange rules;*
- the compatibility with counterparties' Data Exchange solutions.

# Data Exchange

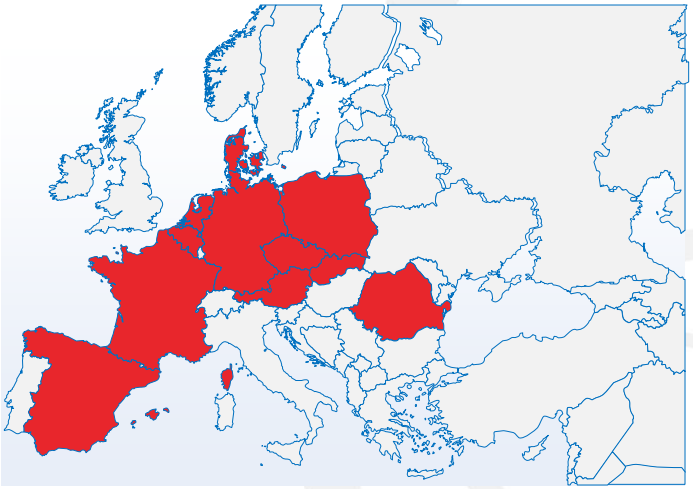
## Evaluation Criteria



# Data Exchange - Actual Spread

## Data format example

Edig@s XML & Edifact



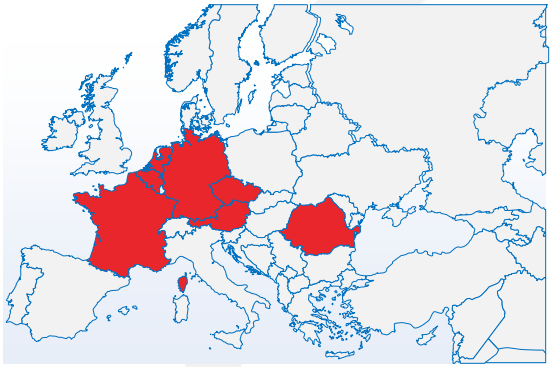
Kiss-A:

(*) Overview based on a TSO questionnaire Q2 2012

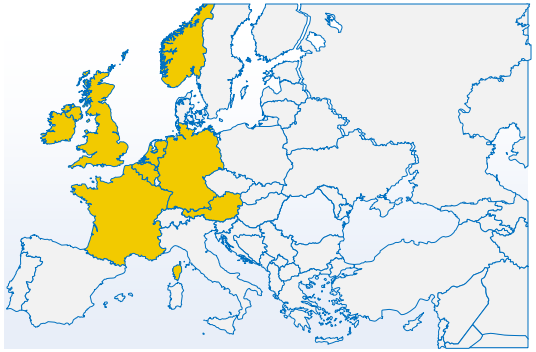
# Data Exchange - Actual Spread

## Communication protocols used (*)

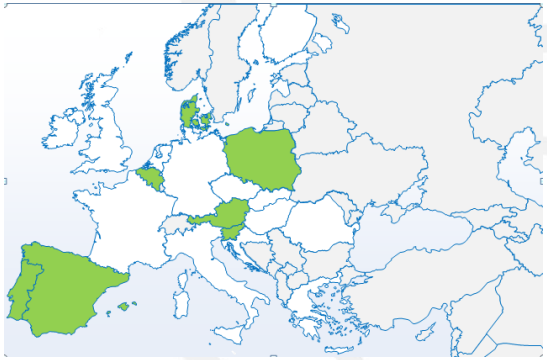
AS2:



FTP:

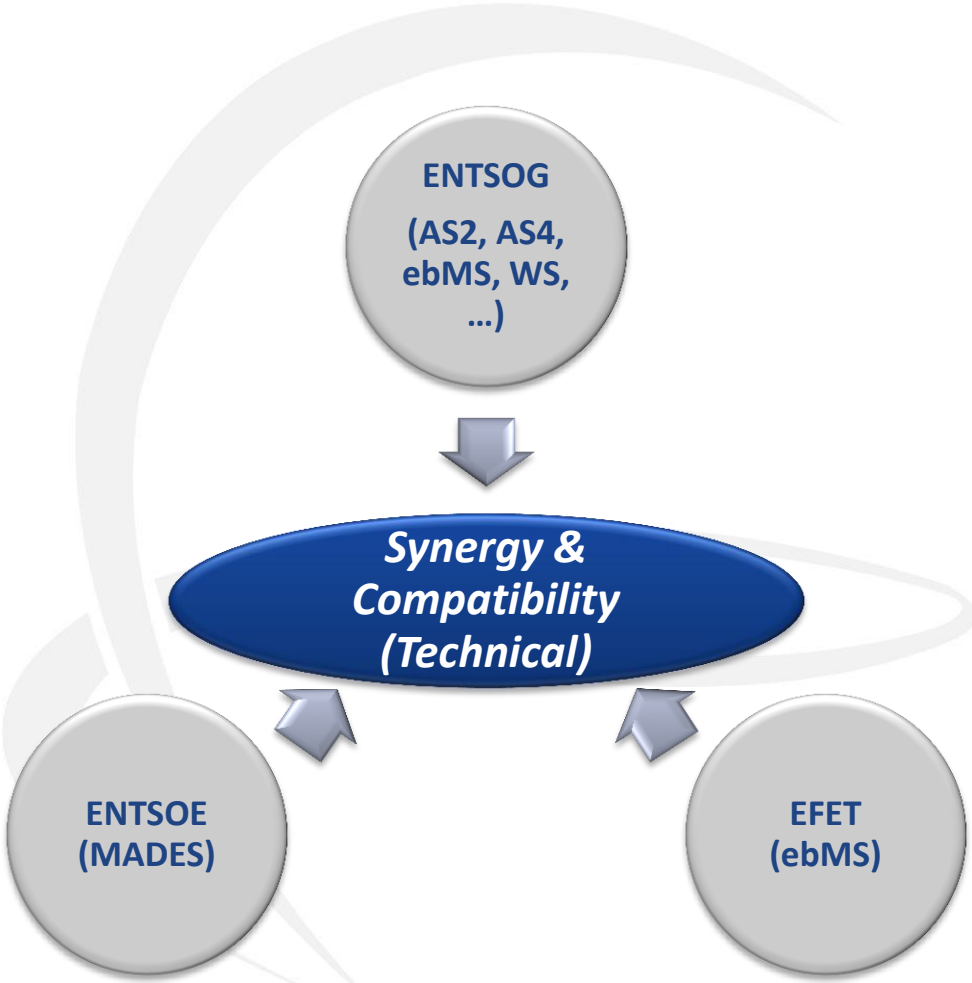


WS:



ebMS:

# Data Exchange - Synergies



# Data Exchange – Criteria

## Security & Confidentiality

- Confidentiality: Encryption of messages
- Identification of counter party (Signature of messages, user or system password,…)
- Acknowledgement of message receipt and message processing
- Non repudiation (Proof of Receipt)
- At least one message delivery

# Data Exchange – Criteria

## Technology Technological requirements:

- ✓ Performance
- ✓ Information Carrier
- ✓ Payload
- ✓ Traceability

## Risk

- ✓ Expected life cycle (e.g. 10 years life cycle)
- ✓ Maturity
- ✓ Actual spread & available products on the market
- ✓ Customer support

# Data Exchange – Criteria

## Cost

- Costs assuming to implement a solution from scratch
  - ✓ Implementation
  - ✓ Infrastructure
- Maintenance Cost
  - ✓ System patching
  - ✓ System upgrade
  - ✓ Configuration changes

# DATA EXCHANGE- Solutions overview

| | | Data Content Format | | Data Exchange Protocol | |
|---|---|---|---|---|---|
| Toolbox | Network | Structure Format | Content Format | B2B Standard | Communication Protocol |
| Document Based DE | Private Network | CSV | Free text | AS4 | HTTP(S) |
| Integrated DE | Public Internet | XLS | Edig@s | AS2 | (S)FTP |
| Interactive DE | X25 | EDIFACT | | ebMS | SMTP |
| | ISDN | XML | | SOAP | |

**Solutions Stack**

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| | | | | | |
| Integrated DE | Internet | XML | Edig@s | SOAP | HTTP(S) |
| | | | | | |
| Interactive DE | Internet | none | tbd | | HTTP(S) |

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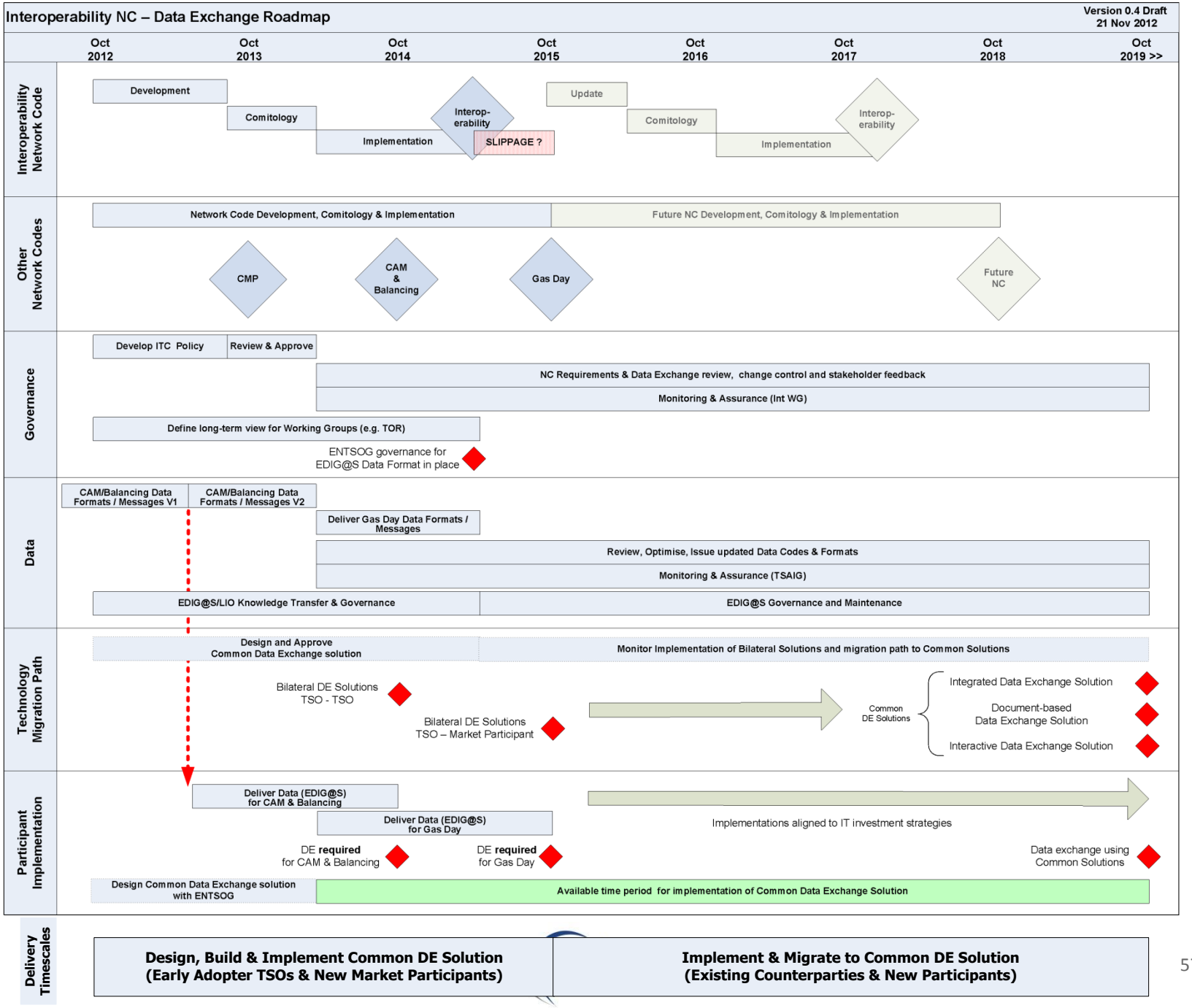
Interoperability NC – Data Exchange Roadmap
Version 0.4 Draft
21 Nov 2012
Oct 2012
Oct 2013
Oct 2014
Oct 2015
Oct 2016
Oct 2017
Oct 2018
Oct 2019 >>
Interoperability Network Code
Development
Comitology
Implementation
Interop-erability
SLIPPAGE ?
Update
Comitology
Implementation
Interop-erability
Other Network Codes
Network Code Development, Comitology & Implementation
Future NC Development, Comitology & Implementation
CMP
CAM & Balancing
Gas Day
Future NC
Governance
Develop ITC Policy
Review & Approve
NC Requirements & Data Exchange review, change control and stakeholder feedback
Monitoring & Assurance (Int WG)
Define long-term view for Working Groups (e.g. TOR)
ENTSOG governance for EDIG@S Data Format in place
Data
CAM/Balancing Data Formats / Messages V1
CAM/Balancing Data Formats / Messages V2
Deliver Gas Day Data Formats / Messages
Review, Optimise, Issue updated Data Codes & Formats
Monitoring & Assurance (TSAIG)
EDIG@S/LIO Knowledge Transfer & Governance
EDIG@S Governance and Maintenance
Technology Migration Path
Design and Approve Common Data Exchange solution
Monitor Implementation of Bilateral Solutions and migration path to Common Solutions
Bilateral DE Solutions TSO - TSO
Bilateral DE Solutions TSO – Market Participant
Common DE Solutions
Integrated Data Exchange Solution
Document-based Data Exchange Solution
Interactive Data Exchange Solution
Participant Implementation
Deliver Data (EDIG@S) for CAM & Balancing
Deliver Data (EDIG@S) for Gas Day
Implementations aligned to IT investment strategies
DE required for CAM & Balancing
DE required for Gas Day
Data exchange using Common Solutions
Design Common Data Exchange solution with ENTSOG
Available time period for implementation of Common Data Exchange Solution
TSO
Shipper
Other Participant
Delivery Timescales
Design, Build & Implement Common DE Solution (Early Adopter TSOs & New Market Participants)
Implement & Migrate to Common DE Solution (Existing Counterparties & New Participants)

# Data Exchange

## *Migration Roadmap:*

- Roadmap provides a single point of reference and a coordinated overview of different activities
- Many technologies in use: roadmap demonstrates a migration path to a common solution
- Implementation timings of solutions by TSOs shall coordinate with implementation of corresponding business processes
- Some flexibility of implementation schedules by NUs may be allowed

# Data Exchange - Agenda

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# Data Exchange

*Questions*

- What do you see as an **important criteria** to take into consideration for the selection of a new Data Exchange solution?
- Do you see a problem with implementing the new communication standard within 12 months by the TSOs' Counter Parties? If so what is the timeframe you would recommend?
- What is the level of details do you consider relevant in the Network Code?
- Do you see a need to have more **detailed technical information** in order to support the implementation of the NC ?(e.g. to take into account technological evolutions)
- How do you see the **consultation process** for the development of the implementation support document? (e.g. stakeholder involvement)
- Consultation process for evolutional changes in the future

# Data Exchange

***Thank you***

# Data exchange

## 2nd Stakeholder Joint Working Session

**Stakeholders' views**

Brussels – 28 Nov 2012

EFET presentation to
ENTSOG SJWS2 on
Data Exchange & Units
Brussels, Nov 28th 2012

EFET

European Federation of Energy Traders

Filip Sleeuwagen

f.sleeuwagen@efet.org

# Agenda

1. Intro
2. EFET's position on:
   - Data Exchange
3. Additional Remarks

# 1. Intro

- The objective is not complete but **efficient harmonization**
- Current ways round many of the barriers  involve an additional layer of complexity or, worse still, are **papering-over–the cracks** to hide the differences and increase the level of unpredictable risk.
- Improved interoperability is essential if the single market is to operate efficiently with well connected balancing zones established over the whole of Europe. The forthcoming Network  Code (and its Impact Assessment) should aim to help this process by **looking forward to what will be necessary in 5-10 years time** rather than relying solely on analysis the status quo.

# 2. EFET's Position on: Scope and Application

- **Interconnection Points between EU member states** and between TSO systems if they are operated separately within a Member State. Optimal to extend to Interconnector Points with non-EU States if practical.
- **Consistent approach for all communication protocols, processes and procedures** between the user and the 'national' TSO regarding all their operations within the EU. The use of standard data formats and content needs to be specified in the Network Code.
- if **DSOs, SSOs & LSOs cooperate in applying the same rules**, it would enhance the FG's application and help to facilitate greater interoperability, since they are integrant part of the gas market. A pragmatic approach must be found to achieve this recognizing the **implementation times** involved and the need to keep the primary focus on the services provided by TSOs.

# 2. EFET's Position on: Scope and Application

- We favour **a very high level of harmonisation** within the whole EU in order to achieve the creation of the single gas market.
- "Business as usual" is not acceptable, 'full' harmonisation is necessary for units, conversion rules and data exchange, and possibly for Odorisation depending on the resolution of current issues. A very high level of harmonisation with built-in contingency between TSOs is essential for interconnection agreements and for capacity calculation, but if these are extended to inter-governmental agreements or arrangements between TSOs and SSOs, DSOs and LSOs, then only partial harmonisation (standardised principles, local implementation) should be required for those cases
- The level of harmonisation is difficult to separate from the geographic installation scope of the Framework Guidelines.

| | *IAs* | *Units* | *Gas Quality* | *Odorisation* | *Data Exchange* | *Capacity Calculation* |
|---|---|---|---|---|---|---|
| *Full harmonization* |  |  |  |  |  |  |
| *Partial harmonization* |  | |  | | |  |
| *Business as usual* | | | |  | | |

# EFET's Position on: Data Exchange

- Data exchange is crucial for gas trading. The more data communicated then the more cross-border trading is made efficiently. **Harmonization of the data format and data content is** also necessary to avoid undue discrimination between traders. Furthermore, EFET has a strong preference that the **same format for Data exchange is used also by SSOs and LSOs** to ensure their integration into a fully interoperable EU gas market.
- EFET is in favour of a **full harmonisation process for data exchange with a standardised messaging protocol**: the format of this protocol must be harmonised, but the content should be more flexible and adapted to the context.
- **Capacity bookings** (real and estimations), **gas flows** (real and estimations), **actual gas quality, maintenance periods** (scheduled and unscheduled) and the data required for **nomination and re-nomination processes** must all have standardized and clearly defined format and content.
- The **open standard** for Data exchange should define **format, content and communication (messaging) protocol** to standardize at maximum the processes to be implemented, minimize the implementation efforts by potentially offering a reference non-exclusive software implementation. Such data format must be maximally based on existing market data standards as currently in place for the energy community (**Commodity product Markup Language – CpML**)
- **Information disclosure** on real time is essential for the EU market functioning, its liquidity and integration. Both the format and content needs to be standardized if data processing is to be practical and the efficiency benefits realized.
- Voluntary rules lead to interpretation and implementation variants, which increase the operational issues of such a process exponentially (e.g. difficulties in connecting the implemented process variants to TSOs, operation burden to foresee reconciliations between the different variants, etc.).It is crucial to lay down all of these rules (process, content, data format and messaging/communication topics) in **strict mandatory**

# 3. Additional remarks

- All proposals in these Framework Guidelines that improve interoperability are welcomed, whether by bringing simplifications that reduce risk (harmonisation of units for instance) or by tackling major hurdles to cross-border trade such as odorisation. But there are other interoperability issues that may have been missed. EFET suggests to write the Framework Guideline in such a way that it **allows for small but important interoperability issues to be raised during the Network Code development process.**
- **Harmonisation of nomination and renomination** seems to have disappeared from these FG on interoperability. The lack of harmonization related to the nomination procedure as a whole (deadlines for nomination & renomination by shippers and confirmation by TSO) is an obstacle to the efficient functioning of the market, as it affects the efficient allocation and use of capacity with a direct impact on the efficiency of the gas market. We fully support the establishment of harmonised timelines for Day-Ahead and Within-Day Nomination/Re-nomination/Confirmation procedures.
- Whilst it is helpful that at a high level an outline standardised timeline is now proposed in the Balancing Network Code ,this does not cover all the **nomination procedures**, nor does it provide the **detailed level of harmonisation** that is required for full interoperability. It is essential that these issues are fully addressed. To the extent that this proves not to be the case in the balancing network code then the topic will need to be included in this interoperability Framework Guideline.

# Questions and Answers

# Thanks for your attention


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- **Summary of our response :**
  - **We strongly support sufficient harmonization to enable efficient operation of wholesale gas trading markets throughout Europe: “what would an ISO do?”**
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  - **Harmonization of nomination and re-nomination processes is necessary (and will need to be in the scope if it is not in other Network Codes.**


# Some remarks on data exchange

Philipp Daniel Palada, ENTSOG SJWS INTER, 28 Nov 2012

# Scope

## The deliverables of this NC

- The scope of the NC is clearly limited to Interconnection Points, but
- It will have at least indirect impact on the data exchange of the entire market (and consequently go beyond the scope)
- The financial impacts or additional costs for non-TSO‘s may exceed those of the TSO‘s by far
- Excessive IT-requirements could act as an entry barrier,
  - existing solutions must not be devaluated,
  - data exchange harmonization requires CBA-justification

# Process

## ENTSOG approach to overcome timing problem

- FG requires harmonization of Data Exchange prior to implementation of the respective business rules
  - Neither CAM/CMP nor Balancing finalized
  - Even if INTER-NC could pre-describe some procedures of these NC‘s a NC is too in-flexible in the fast changing environment of IT (and data exchange)
- Implementation Guideline (Handbook) best way to handle these issues (even if not legally binding)
  - NC to describe process of set up data exchange rules
  - Detailed business rules/procedures and respective IT-implementation in Implementation Guideline (Handbook)
- Stakeholder involvement key for proper implementation
  - Broad acceptance success factor
  - Envolvement not only now but during all future adjustments
  - Potential IT-investment obligations for market participants require transparent economic evaluation and transparent approval mechanisms (and consequently the right to reject proposals)

# What to fix in NC and Handbook

## Flexibility essential

- There are existing formats and procedures for data exchange, the proposed solution shall take into account the actual spread
- An implementation roadmap and potential exemptions needed to avoid stranded investments
- Fit for purpose solutions instead of expensive over-engineering to protect non TSO‘s

# Data exchange

## 2nd Stakeholder Joint Working Session

**Discussion**

Brussels – 28 Nov 2012


Network Code Interoperability
and Data Exchange Rules
2nd Stakeholder Joint Working Session
28 November 2012 at Thon Hotel EU in Brussels

# Lunch

# Units

## 2nd Stakeholder Joint Working Session

**Colin Hamilton, National Grid**

**Brussels – 28 Nov 2012**

# Units

## *Framework Guidelines*

3. Units

A lack of harmonisation with regards to the units used by TSOs along the gas value chain may constitute a barrier to cross-border trade and access to markets. The Network Code shall determine the use of harmonised units at least for energy, volume, pressure and gross calorific value, for the TSOs to use when communicating to counterparties.

Where the harmonisation of units has already been covered by EU legislation or in a Network Code adopted by ENTSOG under Art 8(2) of the Gas Regulation, the Network Code shall not duplicate these provisions, but shall introduce further harmonisation, insofar it is deemed necessary for the purposes of interoperability as defined in these Framework Guidelines.

# Units

## *Common set of units:*

- The common units for pressure, temperature, volume, calorific value, energy, and Wobbe-index shall be:
  - ✓ Pressure :bar
  - ✓ Temperature : ° C (degree Celsius)
  - ✓ Volume : $m^3$(n) (at 0° C and 1.01325 bar(a))
  - ✓ Gross Calorific Value : kWh/$m^3$(n)
  - ✓ Energy : kWh (based on GCV)
  - ✓ Wobbe-index : kWh/ $m^3$(n)(based on GCV)

**(i) For pressure, it should be indicated whether it refers to absolute (bar(a)) or gauge (bar(g)).**

**(ii) Combustion reference temperature for GCV, Energy and Wobbe-index shall be 25° C.**

# Units

## *Utilisation of Common Set of Units:*

- The common set of units shall at least be used for communications associated with the operational procedures and information exchange described in the European network codes between adjacent TSOs and between TSOs and other Counterparties (electronically received communications) related to transportation of gas across an Interconnection Point or in respect of the publication of data on a common platform.

# Units

## *Utilisation of other Units:*

- The utilisation of other units in addition shall be permitted for data communication between adjacent TSOs where both parties agree and between TSOs and other Counterparties if required by national regulatory/legislative frameworks.

- Where TSOs use other units the conversion factors used shall be published by the TSO.

# Units

***Questions***
***and***
***Answers***

# Units

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**Stakeholders' views**

**Brussels – 28 Nov 2012**

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Filip Sleeuwagen

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# EFET's Position on: Units

- Although the current situation does not appear to be a major barrier that prevents trading opportunities within the more liquid markets, the **use of non-standardised units**, however, **introduces unnecessary operational risk**, complexity and costs to the daily activities of shippers and could therefore discourage new entrants or limit cross-border trading activity.
- Harmonization of units principally **eases the communication** among TSOs and between TSOs with other involved parties and contributes to efficient market functioning, whilst contributing positively to the management of measurements.
- EFET is in favour of **full harmonisation of units** (especially any units underlying capacity bookings, nominations and balancing) across Europe. Harmonisation should include **all units that are used for capacity, nominations, gas flows, gas quality or balancing**. Whilst extending beyond that is not necessary from a network user perspective, it would be helpful to have official naming conventions for other units and an official conversion table.

# 3. Additional remarks

- All proposals in these Framework Guidelines that improve interoperability are welcomed, whether by bringing simplifications that reduce risk (harmonisation of units for instance) or by tackling major hurdles to cross-border trade such as odorisation. But there are other interoperability issues that may have been missed. EFET suggests to write the Framework Guideline in such a way that it **allows for small but important interoperability issues to be raised during the Network Code development process.**
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# Harmonisation of units – Use in CEN standards related to gas infrastructure

**ENTSOG JSWS 2, 2012-11-28, Brussels**

Daniel Hec, Marcogaz for CEN/TC 234

# Units already used and defined in European and international standards

- With view to the general European harmonisation and the use of units in the generally acknowledged European Standards for the gas infrastructure, CEN/TC 234 respectfully propose to switch the units to those used in the European Standards.

# Use of units in related CEN standards

| Parameter | ENTSOG Business Rules INT 0327-121023 | European Standards for gas infrastructure (CEN) |
|---|---|---|
| Volume[()] | $m^3$ (0°C, 1.01325 bar(a)) | $m^3$ (15°C, 1.01325 bar(a)) |
| Gross Calorific Value (GCV) | kWh/$m^3$ (25°C, 0°C, 1.01325 bar(a)) | MJ/$m^3$ (15°C, 15°C, 1.01325 bar(a) or 1013.25 hPa (a)) |
| Energy[(2)] | kWh (25°C, 0°C, 1.01325 bar(a)) | MJ (15°C, 15°C, 1.01325 bar(a) or 1013.25 hPa (a) [(3)]) |
| Wobbe Index | kWh/$m^3$ (25°C, 0°C, 1.01325 bar(a)) | MJ/$m^3$(15°C, 15°C, 1.01325 bar(a) or 1013.25 hPa(a) [(3)]) |
| Reference combustion temperature | 25 °C | 15 °C |
| Reference Volume measurement temperature | 0 °C | 15 °C |
| Reference pressure | 1,01325 bar (a) | 1,01325 bar(a) or 1013,25 hPa (a) |

[1] Note: ISO 13443 recommends that the reference conditions are stated as: volume measurement reference temperature, reference pressure)
[2] Note: ISO 13443 recommends that the reference conditions are stated as: combustion reference temperature, volume measurement reference temperature, reference pressure)
[3] Note: Currently, the draft EN on gas quality uses 1013.25 hPa (a), all other relevant European Standards use 1.01325 bar (a)

# Relevant CEN/ISO Standards in the context of ENTSOG units

| CEN/ISO Standards | Remark |
|---|---|
| **EN 1594 "Gas infrastructure - Gas pipelines with maximum operating pressure over 16 bar – Functional requirements"** | Volume is defined under normal and standard conditions. Gas quality is defined by making reference to ISO 13686 (see below). |
| **EN 1776 "Gas infrastructure – Gas measuring systems"** | Volume and combustion reference defined by making reference to EN 437 (see below). |
| **EN 437 "Test pressures – test gases – Appliance categories"** | All CEN/TC 234 standards refer to one or the other of these both standards for the gas quality until the new M/400 standard is available. |
| **ISO 13686 "Natural gas – quality designation"** | |

# EN “Gas quality – Type H” – M/400

| CEN/ISO Standard | Remark |
|---|---|
| **WI 00234070 Gas Quality – Type H – present draft scope (M/400)** | Draft scope refers to Wobbe Index given in EN 437 and is currently subject to discussion. The draft standard is based on M/400 and ISO 12443 and is basis for the final scope.<br><br>Mandate M 400 states that *" The standards shall be defined according to reference conditions as recommended by the technical committee ISO/ TC 193. (ISO 13443)* |
| **ISO 13443 Natural gas Standard reference conditions** | States "The standard reference (or base) conditions of temperature, pressure and humidity (state of saturation) to be used for measurements and calculations carried out on natural gases, natural-gas substitutes and similar fluids in the gaseous state are 288,15 K and 101,325 kPa [(4)] for the real dry gas." And gives recommendation for conversion in other conditions. |

# Thanks for your attention and the consideration of the CEN/TC 234 statement!

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TECHNICAL ASSOCIATION
OF THE EUROPEAN NATURAL GAS INDUSTRY








# Marcogaz comment on Business Rules Chapter III units

**ENTSOG SJWS 2**

**28th November 2012 Brussels**

# GCV and Energy

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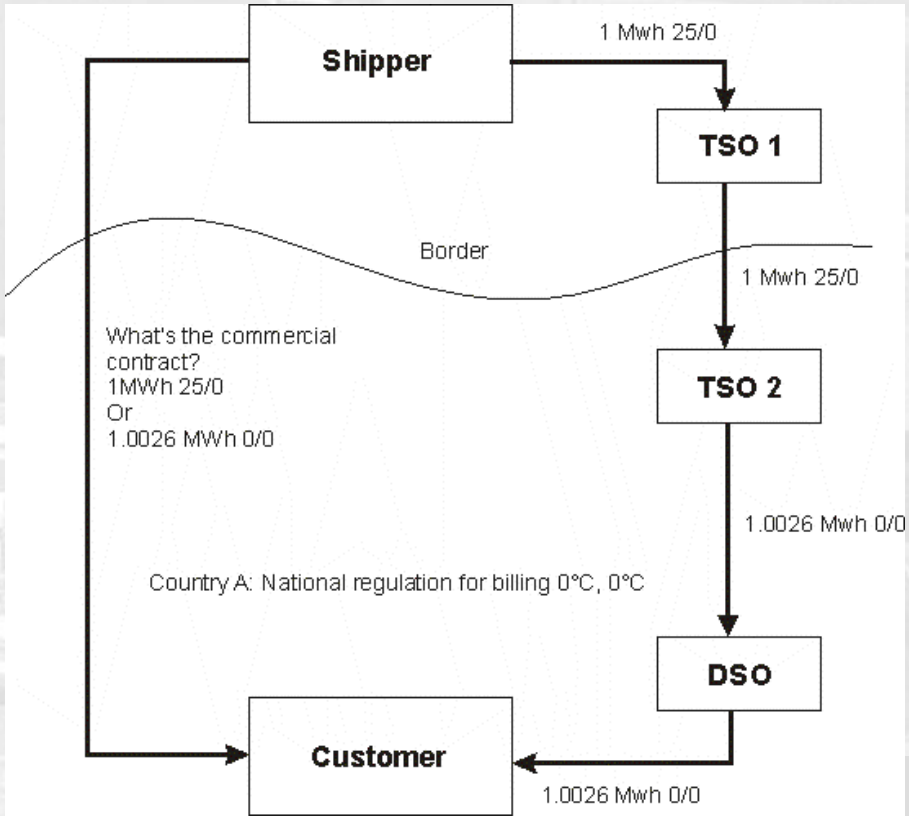
- **ENTSOG proposal**
  - Use kWh, reference conditions 25°C, 0°C, 1.01325 bar(a)
  - Use for TSO-TSO communication and other parties
- **Marcogaz point of view**
  - GCV used to express energy on the whole gas chain
  - Proposal harmonises only one part of the chain,
  - Some National references different
  - Consequences still a lot of complexity will remain



# Wobbe index

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- Wobbe index is a **specification essential for safety purposes**
- As such it shall be:
  - **Unambiguous**
  - **Clear**
  - **Understandable by everyone**
- Standards are using MJ/m$^3$ (15°C, 15°C, 1013.25 hPa)
  - **EN 437 basis for certification of gas appliances**
  - **future gas quality standard should use same units and references**
- Network code should use same unit and references
  - **Wobbe index: MJ/m$^3$**
  - **Reference combustion temperature 15°C**
  - **Reference Volume measurement temperature 15°C**
  - **Reference pressure 1013.25 hPa**

# Marcogaz proposal

- Units and reference conditions to be defined carefully
- Develop a unique set of units and reference conditions is preferable
- To be applied on the whole gas chain
- In association with NRA and National & European metrology
- Minimising the global cost introduced by changing metering conditions, information system, etc.

# Units

## 2nd Stakeholder Joint Working Session

**Discussion**

Brussels – 28 Nov 2012


# Coffee break


# Closing remarks

# Conclusions

- ***Notes and presented material to be published next week***
- ***Feedback for business rules welcomed, preferably before 4th Dec (on non-binding basis)***
- ***Official consultation on draft NC in Mar-Apr'13***
- ***Data exchange:***
  - Need for some flexibility in implementation timeline
  - Handbook supported for technical details
  - Support to include standard solutions for protocol, network and format in NC
  - Stakeholder involvement in defining and evolving standards as well as in definition of content of communication
- ***Units:***
  - Have to stay in line with existing Reg. and NCs
  - Interaction with CEN activity is necessary so as to achieve harmonisation

# Thank You for Your Attention

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