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**COMMISSION STAFF WORKING DOCUMENT**

**EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT**

***Accompanying the document***

**Commission Regulation (EU) N°.../...**

**establishing a Network Code on Interoperability and Data Exchange Rules**

Europe is facing increasing competition from rapidly growing economies around the globe. Competitive energy prices for European companies will be crucial in keeping our competitive advantage. Completion of the internal gas market has recently been calculated to generate up to EUR 30 bn in gross benefits[1]. The EU has committed itself to completing the internal market in electricity and gas by 2014[2], which means the building of an integrated and interconnected market in gas allowing all market players to compete on a level playing field while creating the framework for securing supplies.

In order to facilitate cross-border trade and remove obstacles to the physical flow of gas within the internal energy market, it is crucial to ensure the ability of the transmission systems operators (TSOs) to work together and interact with network users. Ideally, in a fully integrated system, a user of two or more transmission systems operated by different transmission system operators in Europe should not face technical, operational or communications barriers higher than those if the relevant networks had been efficiently operated by a single transmission system operator.

Developing EU-wide interoperability and data exchange rules will remove obstacles deriving from these national arrangements and facilitate the completion of the EU internal energy market. The development of EU-wide rules on interoperability and data exchange has been consistently supported by essentially all stakeholders. The aim of the network code interoperability and data exchange is to remove technical barriers that could hamper trade, introducing the standardization of so-called interconnection agreements between TSOs and the utilisation of same units at the different interconnection points, and promoting the harmonisation of communication formats among market participants to facilitate technical, operational related communications.

## 1. PROBLEM DESCRIPTION

Operational, technical and communication interoperability of transmission networks is a prerequisite for integration and well-functioning of energy markets. The absence of such common interoperability rules in the European Union can constitute an obstacle to the creation of an integrated, competitive internal European market for energy.

The problems that have been identified are:

- Lack of homogeneous **Interconnection Agreements**. At an interconnection point TSO to TSO arrangements are usually captured in some form of agreement. This situation creates problems because there are different costs and risks that are dependent on the structure of the interconnection agreement (e.g. lack of clear definition of the roles and responsibilities of TSOs for controlling the gas flows). Without establishing these responsibilities, uncoordinated actions by TSOs could result in artificial constraints to the capacity available.

[1] Benefits of an Integrated EU Energy Market - Booz&Co (July 2013)

[2] The political objective of completing the internal market for electricity and gas is set out in the European Council Conclusions of 4 February 2011

- Use of different **units**. A variety of units are used throughout Europe for describing various parameters leading to efficiency losses for market players.
- Lack of common **data exchange solution**[3]. Today, multiple local data exchange solutions are in place in different areas in Europe. The different approaches adopted by TSOs therefore introduce a barrier to entry.
- Cross-border trade restriction due to **gas quality**. There is a variety of gases that can be classified according to a set of parameters[4]. Some parameters are important in a safety context, some parameters have economic impacts. Member States have developed their own practices in setting boundaries to these parameters. The lack of harmonization on gas quality parameter could become a serious obstacle for the free flow of gas across border.
- Cross-border trade restriction due to different **odourisation practices**. Natural gas is odourless. For safety purposes artificial odorants are added. Within the EU, the point on the system at which odourisation occurs varies. Most of EU Member States require the injection of odorants into distribution networks while in few Member States[5] gas is odourised at transmission level. The different approaches are not compatible. MSs only odourising on the distribution level have a 0 or very low tolerance for the sulphur or other odourising agents in the gas at transmission level for reasons of particularly of environmental policy as odourising on the distribution level requires only around 30-40% of the sulphur-based odourant to be added.[6] While the flow of gas from odourized to non-odourized networks is clearly not the general direction of the gas flux, the advantages of the well-interconnected internal market with harmonized rules would allow for gas to flow on the basis of supply-demand fundamentals which could like also mean flows against the dominant direction.[7]

## 2. OBJECTIVES

- To improve competitiveness and transparency in the EU gas market
- To remove barriers to cross-border trade between EU Member States
- To set non-discriminatory rules for access conditions to natural gas transmission systems within the EU
- To harmonize the terms under which adjacent TSOs set the basis for their operational cooperation in the EU

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[3] The components of the data exchange solution are: 1) Data network; 2) Data format; 3) Data protocol codifying possible interaction between the parties

[4] i.e.: the specific constituents (e.g. methane, hydrogen sulphide); the physical characteristics (e.g. energy content, density); derivations of these (Wobbe index, rates of change).

[5] i.e. France, Spain, Ireland and Luxembourg

[6] Consequently there is at the moment 0 available firm entry capacity from France into Germany or Belgium.

[7] Such flows against the historical dominant direction are e.g. also occurring at the Interconnection point between Slovakia and the Czech Republic where physical flows have nowadays been reversed for delivery into Slovakia. A similar trend has also been occurring on the Austrian-German border at Oberkappel with gas at times physically flowing into Austria instead of Germany.

## 3. LEGAL BASE AND SUBSIDIARITY PRINCIPLE

The right of the EU to provide a more detailed regulation on interoperability and data exchange in gas transmission systems in the form of binding EU network codes (NC) is set out in Article 8(6)(e-d) of the Gas Regulation. The Commission's initiative to adopt the Network Code Interoperability and Data Exchange (NC IO&DE) is fully in line with the principle of subsidiarity, as the IO&DE NC only sets the minimum degree of harmonization necessary to ensure interoperability between system operators. There are also significant differences in data exchange procedures implemented and specific agreements between TSOs and DSOs at national level. These national differences are taken into account in the NC IO&DE which will provide for the possibility of interim measures to be taken and for the possibility to apply ad hoc solutions.

## 4. POLICY OPTIONS

EASEE-gas[8] has, to the extent possible, already developed Common Business Practices that did not succeed in achieving the level of harmonization necessary for the smooth operation of the internal market. Therefore the Commission services are of the view that the option of non-binding guidelines would not be sufficient to provide the necessary output in order to solve the outlined problems.

### 4.1. Option 1: no further EU action

This policy option does not foresee any further rules on interoperability and data exchange. Under this option no harmonised measures are proposed. Interoperability and data exchange rules would develop either on a voluntary basis as market maturity grows, or as the national measures dictate.

### 4.2. Option 2: harmonised EU rules on interoperability and data exchanges with room for specific/national arrangements

Under option 2, harmonised rules for interoperability and data exchange that enable TSOs and network users to exchange gas efficiently would be set. These harmonised rules would leave room for national specificity where this better achieves the objectives, whilst ensuring that such specific arrangements are not contrary to the objectives of the interoperability and data exchange arrangements. The application of interim steps would help ensure that the rules are sufficiently ambitious and at the same time achievable across the EU.

The core measures under option 2 are:

**Interconnection Agreement**: This option foresees that interconnection agreements (IA) based on a set of harmonised terms shall be established on a mandatory basis by all concerned TSOs at all interconnection points. This option provides that the interconnection agreement will include at least mandatory terms and so-called default rules on: rules for flow control; measurement principles of gas quantities and quality; matching; rules for the allocation of gas quantities; exceptional events and

[8] The European Association for the Streamlining of Energy Exchange-gas (EASEE-gas) was formed in 2002 with the aim of supporting the creation of an efficient and effective European gas market through the development of Common Business Practices (CBPs) that intend to simplify and streamline business processes between stakeholders.

procedure for modifying the agreement (amendment process). Under this option, the contractual freedom of two adjacent TSOs is preserved, while at the same time, the elements to be agreed on are fixed.

**Units**: This option foresees to prescribe the following units when communicating to counterparties: Pressure: bar; Temperature: °C ; Volume: m3; Gross Calorific Value (GCV): kWh/m3; Energy: kWh (based on GCV); Wobbe-Index: kWh/m3 (based on GCV). This option would permit the utilization of additional units for data communication between adjacent transmission system operators and between TSOs and other counterparties where both parties agree.

**Gas Quality**: This option would require: i) TSOs to cooperate in order to manage non-compliant gas presented by an upstream TSO wherever it is economically/financially appropriate. TSOs would have to implement swapping[9] or co-mingling[10] firstly where feasible, and secondly to assess other possible solutions such as gas treatment[11] or flow commitments[12]; ii) TSOs to provide sufficient information to enable users and consumers to understand the forward-looking risks associated with gas qualities.

**Data Exchange Solutions**: This option will foresee a common set of data formats, data network and exchange protocol for the reliable, secure and smooth exchange of information among TSOs, as well as from TSOs to relevant counterparties. Option 2 allows for the co-existence of existing solutions in parallel with the harmonised approach.

**Odourisation**: This option requires that relevant transmission system operators work to resolve the issue either via bilateral agreements or by cooperating with relevant authorities[13], to facilitate a shift towards transportation of non-odourised gas at the relevant interconnection points.

### 4.3. Option 3: harmonised EU Interoperability and Data Rules without room for specific/national arrangements

Under this option, there would be more prescriptive and more detailed harmonised rules across Europe without the possibility of system-specific solutions or interim steps. Rules on interoperability and data exchanges will be defined in detail.

The core measures under option 3 are:

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[9] Adjacent transmission system operators have the opportunity to swap amounts of gas on reasonable endeavours basis

[10] It is a form of gas blending and refers to a situation where two or more gas streams blend fortuitously prior to the gas entering the network on which the gas quality limits apply with the aim of delivering an acceptable 'blended gas'

[11] Physical treatment of natural gas (injection or removal of certain compounds).

[12] They are contractual arrangements between network users and transmission system operators providing the transmission system operator with the option to request network users to manage their inputs or off-takes resulting in gas flows within an agreed range at one or more entry or exit points, for the purpose of maintaining existing entry and exit capacities.

[13] The cooperation with the competent national authorities is required, since transmission system operators cannot decide unilaterally to change odourisation practices on their own.

Interconnection Agreement: This option requires the specification of a full set of rules that a TSO is mandated to apply at each interconnection point. TSOs will not have any contractual freedom as all the mandatory terms: i.e. rules for flow control, measurement principles of gas quantities and quality, matching, rules for the allocation of gas quantities, exceptional events and procedure for modifying the agreement (amendment process) will be laid down in a standard interconnection agreement.

Units: This option foresees to prescribe the following units (as in option 2) when communicating to counterparties: Pressure: bar; Temperature: °C; Volume: m3; GCV: kWh/m3; Energy: kWh (based on GCV); Wobbe-Index: kWh/m3 (based on GCV). However this option would not allow TSOs to agree to use additional units besides the ones fixed. This option would not permit the utilization of other units for data communication between adjacent TSOs and between TSOs and other counterparties where both parties agree.

Gas Quality: Under this option there will be a full physical harmonisation of the entire EU H-gas market to an agreed specification. Such a pan-European specification could be very broad, encompassing the majority of existing specifications and obliging TSOs to accept most gases presented to them at any interconnection point. A specification could also be very narrow, which would ensure a predictable gas quality for users but entail significant treatment costs at entry points. Currently, the European body for standardisation, CEN, following a mandate of the Commission, is in the process of developing a gas quality standard for high calorific gas quality, that are the broadest possible within reasonable costs.

Data Exchange Solutions: This option would be equal to option 2 i.e. extending harmonisation of data exchange solutions to all areas where TSOs exchange data among themselves or communicate data to counterparties. However this option will not allow the co-existence of parallel solutions that would minimise the costs' impact on the market, it will impose a common data exchange solution also to distribution system operators at national level as well without the possibility for TSOs to maintain flexible implementation schedules between TSOs and network users.

Odourisation: This option would require all Member States to apply the same odourisation practice without the possibility to assess alternative solutions (i.e. swapping[14], flow commitments, etc.) when the problem arises. As the majority of EU Member State odourise gas at distribution level, this option will imply for Member States odourising gas at transmission level to move their odourisation practice from transmission to distribution level.

## 5. EVALUATION OF OPTIONS

The Commission services propose to pursue option 2, thereby submitting the NC IO&DE for the opinion of the Gas Committee in the context of the Comitology procedure. It was explicitly foreseen by the legislator in the Third Energy Package that the rules had to be further complemented by more technical market design and network operation rules to be developed under the Comitology procedure.

[14] Adjacent transmission system operators have the opportunity to swap amounts of gas on reasonable endeavours basis

Option 2 has the right balance between the necessary harmonisation of rules on interoperability and data exchange that would ensure better and easier use of the gas transmission systems without adding unnecessary extra costs due to the lack of flexibility in the implementing measures

Option 1 would not overcome national discrepancies causing inefficiencies or barriers to trade, ultimately affecting the completion of the internal market. This has also been the view held by stakeholders in several public consultations. Experience in the gas sector shows that in case of contentious issues, opposing national models and approaches, even between adjacent Member States, may not be resolved easily or could be resolved only over a lengthy period of time. Therefore, option 1 is not appropriate to be pursued.

While the ambition of option 3 may be appropriate, its lack of flexibility may not be necessary – at the moment –, also adding extra costs. The fully harmonised level requested in Option 3 is also contemplated in option 2 but only as last option (e.g. in the form of default rules) after having explored alternative solutions according to a proper cost benefit analysis. It seems therefore that this option at the moment is not proportionate and not effective in terms of costs.

The table indicates the comparison of the Policy Options in terms of their effectiveness, efficiency and coherence of responding to the specific objectives:

| | **Economic** | | | **Social** | **Environment** | **Public consultation support** |
|---|---|---|---|---|---|---|
| | Facilitate competition | Transparency and non-discrimination | Administrative burden | | | |
| **Option 1:** no further EU action to address IO&DE rules (baseline scenario) | **-** | **-** | **0** | **0/-** | **0** | **-** |
| **Option 2**: harmonised EU rules on IO&DE that allow for interim measures and differences | **++** | **++** | **0** | **0/+** | **0/+** | **++** |
| **Option 3:** detailed harmonised IO&DE rules without room for national arrangements or interim steps | **+/-** | **+** | **0** | **0/+** | **0/+** | **+/-** |

## 6. MONITORING AND EVALUATION

Core indicators of progress in the field of improved interoperability and data exchange in gas transmission systems are:

- Improved liquidity on the gas wholesale markets,
- Elimination of any cross-border trade restrictions
- Increased number of active shippers and traders on the market,
- Increased trading at the virtual trading points,
- Better price convergence between gas markets.

It is foreseen that the Interoperability Network Code is subject to the general ACER and ENTSOG monitoring obligations concerning Network Codes with the aim of ensuring that a correct and full implementation of these legislative initiatives contributes to the completion of the EU internal energy market.