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**Framework Guidelines on
Interoperability and Data Exchange Rules for
European Gas Transmission Networks**

FG-2012-G-007

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This Document contains the Framework Guidelines on Interoperability and Data Exchange Rules for European Gas Transmission Networks, which the Agency for the Cooperation of Energy Regulators has developed pursuant to Articles 6 of Regulation (EC) No 713/2009 and of Regulation (EC) No 715/2009 and pursuant to the request of the European Commission of 31 January 2012.

Related Documents

- Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas repealing Directive 2003/55/EC, OJ L 211/94, 14.8.2009;
- Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators, OJ L 211/1 14/08/2009.
- Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, OJ L 211/36 14/08/2009.
- European Commission Mandate to CEN for standardisation in the field of gas qualities of 16 January 2007 (M/400).
- European Commission Mandate to CEN for standards for biomethane for the use in transport and injection in natural gas pipelines of 8 November 2010 (M/475).
- Agency Framework Guidelines on Capacity Allocation Mechanisms for the European Gas Transmission Network of 3 August 2011 (FG-2011-G-001).
- Agency Framework Guidelines on Gas Balancing in Transmission Systems of 18 October 2011 (FGB-2011-G-002).

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1. General Provisions

a. Introduction

Operational, technical, communication and business interoperability is a prerequisite for the well-functioning and the integration of energy markets. The absence of such interoperability in the European Union can constitute an obstacle to the creation of an integrated, competitive internal European market for energy, especially in view of the 2014 objective, as expressed by the European Council¹.

As part of the on-going effort to eliminate the barriers to the free flow of gas in Europe, the present Framework Guidelines on Interoperability and Data Exchange Rules for European Gas Transmission Networks (the 'Framework Guidelines') identify areas where increased harmonisation of technical, organisational, communication, as well as business rules and practices, will foster market integration. Such harmonisation is expected, in particular, to enhance cooperation among transmission system operators ('TSOs'), as well as between TSOs and gas transmission network users. The Framework Guidelines aim at setting clear and objective principles for the development of a Network Code on Interoperability and Data Exchange Rules (the 'Network Code'), pursuant to Articles 6(2), 8(6)(d) and 8(6)(e) of Regulation (EC) No 715/2009 (the 'Gas Regulation')².

The overall aim of the *interoperability* rules is to ensure that users of two or more transmission systems operated by separate entities in Europe do not face technical, operational, communications³ or business-related barriers higher than those that would be reasonably expected if the relevant networks were efficiently operated by a single entity.

The aim of *data exchange* rules is closely linked to that of the interoperability rules. By addressing specifically the harmonisation of communication formats among market participants, data exchange rules are set out to streamline practises and facilitate technical, operational or business-related communications. Data exchange is understood as the exchange of all necessary information among TSOs, as well as from TSOs to counterparties (including platforms operators) in the areas set out in Article 8(6) of the Gas Regulation with a view to achieve the objectives set out in Article 4 thereof.

¹ European Council of 4 February 2011, Conclusions, where the target for the completion of the internal market is set for 2014, "so as to allow gas and electricity to flow freely" across the European Union.

² Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation 1775/2005, OJ L 211/36 14/08/2009.

³ As explained further in the paragraph below on data exchange

b. Scope and application of the Network Code

The Network Code developed by the European Network of Transmission System Operators for Gas (ENTSO-G) on the basis of these Framework Guidelines shall apply to TSOs, with the aim to reach full market integration. LNG operators and storage operators shall facilitate interoperability and support the provisions related to TSOs laid down in these Framework Guidelines, in line with Article 15(1)(b) of the Gas Regulation.

TSOs shall cooperate with stakeholders, including distribution system operators, in developing and implementing the Network Code. European TSOs are encouraged to co-operate as much as possible with TSOs from Third Countries on interoperability issues.

c. Objective

The overarching objective of the Network Code is the harmonisation of rules for the operation of transmission systems in order to encourage and facilitate efficient gas trading and transport across gas transmission systems within the EU, and thereby to move towards greater internal market integration. The Network Code must be compliant with the overall objectives of the internal energy market, including security of supply, the completion of the internal gas market, and delivering benefits to the consumers. The specific objective of the Network Code is to define consistently harmonised technical, operational, communication rules and rules for business conduct that will allow the achievement of the objectives as set out in the Framework Guidelines, as well as in the Third Energy Package. Interconnection Agreements, units, gas quality and odourisation, capacity calculation and data exchange are areas where barriers to the efficient functioning of the Internal Gas Market have been identified by the Agency and for which a common approach based on harmonised rules could smooth the interoperation of the systems, including communication.

The technological underpinnings of the interoperability and data exchange rules are subject to constant change. The operational, communication and business practices follow these developments. The Framework Guidelines set out principles and requirements taking into account these potential developments. Whereas the means and format through which necessary information is communicated between TSOs and between TSOs and counterparties, shall be defined in the Network Code on Interoperability as described in section 6 on Data Exchange, the precise content of the same information will be determined by other Network Codes as well.

d. Definitions

For the purpose of these Framework Guidelines the definitions of Directive 2009/73/EC⁴ (the ‘Gas Directive’), of the Agency Regulation and of the Gas Regulation shall apply. Moreover, the following definitions also apply.

- **Exceptional event**

Any unplanned event that may cause, for a limited period, capacity reductions, affecting thereby the quantity or quality of gas at a given interconnection point, with possible consequences on interactions between TSOs as well as between TSOs and system users.

- **Interconnection Agreement**

An agreement entered into by and between adjacent TSOs, whose systems are connected at a particular interconnection point, which specifies terms and conditions, operating procedures and provisions, in respect of delivery and/or withdrawal of gas at the interconnection point with the purpose of facilitating efficient interoperability of the interconnected transmission networks.

- **Operational balancing account**

An account between two adjacent TSOs, to be used to manage steering differences at an interconnection point in order to simplify gas accounting for network users involved at the interconnection point.

e. Implementation, transitional period and monitoring

The Network Code shall foresee that the TSOs shall comply with its requirements within 12 months after its entry into force, unless otherwise specified in these Framework Guidelines. Such compliance includes the adaptation or completion of existing contracts and agreements.

The conduct of assessments and public consultations shall not impede the implementation of the Network Code, pursuant to the provisions of the Gas Directive, the Gas Regulation and the present Framework Guidelines.

The Network Code shall require TSOs timely to inform all concerned counterparties on the possible consequences the implementation of the Network Code may have on their activities, to afford them time to adapt their practices.

⁴ Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas repealing Directive 2003/55/EC, OJ L 211/94, 14.8.2009.

f. Dispute resolution

The Network Code shall state that adjacent TSOs shall endeavour to resolve any dispute which may arise among them, while the relevant dispute settlement authorities, pursuant to Article 41(11) of the Gas Directive, shall, within their competence, act upon request of any of the TSOs, making every effort to reach a common decision on such disputes. Should the relevant dispute settlement authorities fail to reach such a common decision, the Agency shall take measures according to the provisions of Article 8 of the Agency Regulation.

2. Interconnection Agreements

The Network Code shall specify that the Interconnection Agreements contain the provisions necessary to facilitate commercial and operational cooperation between adjacent TSOs. Individual Interconnection Agreements shall be established on a mandatory basis by all concerned TSOs at all interconnection points. The Network Code shall detail the process for the development and conclusion of new Interconnection Agreements.

As a general requirement, the Network Code shall ensure that Interconnection Agreements respect the following criteria:

- Impose no restriction to cross-border trade;
- Promote the development of competitive and liquid markets at both sides of the interconnection points.

The Network Code shall specify that Interconnection Agreements are communicated to the concerned NRAs upon their conclusion and amendment, and at the NRAs' request.

The Network Code shall outline the mandatory terms of the Interconnection Agreements, including minimum requirements, on at least the following:

- **Modification of Interconnection Agreements:** The Network Code shall specify that Interconnection Agreements define a transparent process for their modification.
- **Rules for flow control:** The Network Code shall require that Interconnection Agreements set out the rules that require TSOs at the interconnection points to agree on the timing, direction and procedures for flow control.
- **Measurement principles of gas quantities and quality:** The Network Code shall ensure that Interconnection Agreements include provisions on methods and procedures for the measurement of gas quantities and quality, including harmonised conversion factors, as well as rules for the handling of differences in measurement and measurement corrections.

- **Matching:** The Network Code shall require that Interconnection Agreements include detailed guidelines regarding communication on the matching process between TSOs, as well as between TSOs and the relevant capacity booking platforms, with a view to assuring that confirmed quantities of gas are equal on both sides of the interconnection point. The Network Code shall define rules applicable to cases of mismatch, whereby the mismatch is either eliminated or otherwise reasonably resolved at least costs for TSOs and users.
- **Rules for the allocation of gas quantities:** the Network Code shall require that Interconnection Agreements stipulate how TSOs should cooperate and provide where necessary for consistent rules in the allocation of gas quantities to shippers in the interconnection point at both sides, as well as the solutions for managing gas quality differences, as detailed in section 4 below. Furthermore, the Network Code shall require TSOs to agree on business rules linked to the handling of steering differences, with an Operational Balancing Account as a standard preferred option.
- **Exceptional events:** the Network Code shall require that Interconnection Agreements include provisions on the way in which TSOs establish contact with the adjacent TSOs, as well as with network users and coordinate necessary actions in case of an exceptional event. The Interconnection Agreements shall in particular define the content and timing of information to be exchanged.
- **Dispute resolution between TSOs:** the Network Code shall require that Interconnection Agreements outline a dispute resolution procedure between TSOs.

The abovementioned terms and requirements shall apply to all Interconnection Agreements, as well as to every amendment/renegotiation of such agreements, concluded after the Network Code becomes effective.

The Interconnection Agreements existing prior to the entry into force of the Network Code shall be adapted or complemented, only insofar as the topics listed above are not addressed therein, and the terms and minimum requirements are not met.

In addition, the Network Code shall provide for default rules on each of the above topics, to be directly applicable in the event the TSOs fail to reach a mutually acceptable agreement on any of these, within a period of 12 months.

Where a default rule implies that data is exchanged between TSOs or between TSOs and network users, the precise content of the information to be exchanged as a consequence of the default rule is to be set out in the Network Code.

3. Units

A lack of harmonisation with regard 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 legislation⁵ 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.

4. Gas Quality

The Network Code shall propose rules to reinforce transparency as well as the cooperation of TSOs on the issue of gas quality in order to prevent differences in gas quality from creating an obstacle to gas market integration

The Network Code shall specify that adjacent TSOs agree where necessary on the handling of gas quality differences at each side of a given interconnection point. The Network Code shall require that TSOs on either side of the interconnection point closely cooperate and work out technically feasible and financially reasonable solutions to handle gas quality issues. Possible solutions might include, but shall not be restricted to, swapping, co-mingling and flow commitments. The solutions shall be such that they support the removal of barriers to cross-border trade resulting from the different gas qualities. TSOs shall jointly determine the solutions facilitating cross-border trade based on a cost-benefit analysis and submit them for approval to the relevant NRAs⁶, following a public consultation with the market.

Short term monitoring

The Network Code shall oblige TSOs to provide relevant network users with pertinent indicative information on Gas Quality and variations thereto. The Network Code shall classify the cases where it is necessary or useful to provide further information to end-users or suppliers on fluctuations of gas quality in order to allow them to take preventive measures. The Network Code shall identify the nature and frequency of submission of such information after duly consulting all concerned parties, so as to allow the concerned parties to take account of the gas quality variations.

⁵ See, for instance, Commission Decision of 10 November 2010 amending Chapter 3 of Annex I to Regulation 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks (2010/685/EU), OJL 293/67, 11.11.2010.

⁶ Articles 40 and 41 of the Gas Directive.

Long term monitoring

As part of the tasks described in Article 8(3) of the Gas Regulation, ENTSOG shall, based on information provided by TSOs, submit an outlook, reviewed every two years, on the possible changes in gas quality within the major European regions⁷ for the next 10 years.

5. Odourisation

The Network Code shall ensure that cross-border flows are not hampered by differences in odourisation practices between adjacent systems.

The Network Code shall encourage TSOs at each interconnection point to reach an agreement to address effectively barriers resulting from differences in odourisation practices. The Network Code shall specify that, if the relevant TSOs, within six months after the entry into force of the Network Code, fail to reach such an agreement or if the agreement is deemed by the concerned NRAs to be not sufficiently effective in addressing barriers resulting from differences in odourisation practices, the TSOs, by cooperating with relevant Member State Authorities, are required to define, within the following twelve months, a detailed plan to implement a shift towards physical flows of non-odorised gas at the specific cross-border interconnection point, using the most cost-effective option. The assessment leading to the choice of option for shifting towards physical flows of non-odorised gas shall take the implementation time into account and be submitted to the concerned NRAs for approval. The Network Code shall indicate that Article 7(4) of Regulation (EC) No 713/2009 applies to the determinations of NRAs referred to above.

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.

⁷ As defined within the Gas Regional Initiatives :
http://ec.europa.eu/energy/gas_electricity/regional/initiatives_en.htm

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.

7. Capacity calculation

Discrepancies between the technical capacities on either side of an interconnection point, as well as any unused potential to maximise capacity offered, may cause barriers to or limit trade. For these reasons, the Network Code shall require the following measures on both sides of an interconnection point:

- a) TSOs shall provide a detailed and comprehensive description of the methodology and process, including information on the parameters employed and the key assumptions, used to calculate the technical capacity according to the Gas Regulation as amended by Decision 2010/685/EU⁸.
- b) The Network Code shall provide a procedure for identifying, and reasonably dealing with any discrepancies, with a view to reach full use of potential to maximise capacity offered. This procedure shall give priority to interconnection points presenting congestions or major discrepancies.
- c) The previously mentioned procedure shall specify how adjacent TSOs shall cooperate to reduce discrepancies with regard to capacity made available at either side of an interconnection point, including cooperation on extreme network scenarios, with a view to ensuring the maximisation of the offered capacity. The Network Code shall contain a list of all relevant parameters and key assumptions the TSOs shall cooperate on in the framework of this procedure.
- d) As part of the tasks described in Article 8(3) of the Gas Regulation ENTSOG shall, based on information to be provided by TSOs, submit a comprehensive annual report on capacity discrepancies. For situations where a reduction of discrepancies can lead to an increase in offered capacity, this report shall also include the timeline within which such reduction is

⁸ Regulation 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67, OJL 295/13, 12.11.2010.

foreseen and the measures taken to that end. The Agency shall receive this report on a yearly basis.

The Network Code shall define rules for TSOs, for the update of their calculation of available and technical capacity with a minimum requirement of quarterly updates for technical capacity.



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