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ACER Report on the implementation of the Interoperability and Data Exchange Network Code

First edition

4 December 2017

ACER - Agency for the Cooperation of Energy Regulators
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This Report presents the results of the monitoring of the implementation of the Interoperability Network Code (Regulation (EU) No 2015/703). Beyond the issue of legal compliance, the Report explores the effectiveness of the implementation of the provisions of the Code in addressing problems initially identified by the Agency. It uses a detailed assessment methodology consistently applied to each national regime. It provides conclusions and recommendations across the EU.

Disclaimer: The conclusions in this Report are based on data collected mainly until the end of December 2016. The preliminary conclusions reached in this Report will have to be reassessed in the coming year.

Related documents

- 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
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0036:0054:en:PDF>

Executive summary

Rules on interoperability and data exchange aim at contributing to security of supply and competitive prices for customers by easing the flows of gas. The rules cover ways in which network operators manage gas flows across borders, deal with differences in gas quality and exchange data between themselves and market players.

Harmonised Union-wide rules on interoperability and data exchange have the objective to create a common set of requirements for cross-border cooperation between gas network operators.

In this Report the Agency for the Cooperation of Energy Regulators (the ‘Agency’) assesses the implementation and the effectiveness of the national approaches regarding interoperability and data exchange against the provisions and the objectives of the Network Code on Interoperability and Data Exchange rules (the ‘Code’)¹. The Report promotes the implementation of the Code and lessons emerging from the national implementations.

It evaluates the key features of the national implementation and reflects on the extent to which they achieve the primary objectives of the Code. To compare these approaches, the Report uses an assessment tool which describes in a standard manner the different national approaches to interoperability and data exchange.

Main conclusions from the Report:

- **Most interconnection Agreements (‘IAs’) are in place, but regulatory supervision is insufficient.** The full assessment is difficult as the Agency does not have access to all necessary input. At this stage, the assessment is based on the self-assessments of the Transmission System Operators (‘TSO’) alone. These self-assessments are neither backed by evidence nor checked proactively for compliance by the National Regulatory Authorities (‘NRAs’) ; The Agency observes as well that **the quality of the IA texts could be improved**;
- **The harmonisation of data exchanges is not achieved** as the process faced initial delays and is still ongoing. As an outcome, the standard developed by the European Network of Transmission System Operators for Gas (ENTSOG) is not applied everywhere;
- **While Gas Quality and Odourisation do not currently cause barriers to trade, the transparency standard set in the Code is not met** in particular regarding information on short-term gas quality variations.

Recommendations:

1. **NRAs must proactively assess the IAs in place** using the standard methodology set in the Report; alternatively NRAs with less or limited technical resources may delegate this assessment to the Agency;
2. **NRAs should promote the implementation of the ENTSOG (Common Network Operation Tool (“CNOT”) Data Exchange standard by TSOs.**
3. **The Agency will further monitor the evolution of the implementation of the provisions of the Code in the coming years**, in particular IAs concluded across borders facing the greatest difficulties, as well as regarding the implementation of the ENTSOG CNOT and transparency over the hourly publication of Wobbe index and Gross Calorific Value (‘GCV’).

¹Commission Regulation (EU) 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules Text with EEA relevance, OJL 113, 1.5.2015, p. 13–26

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1. Part I – Overview of the report

- (1) Regulation (EC) No 715/2009 (the ‘Gas Regulation’) sets the necessary technical rules for the creation of an integrated energy market across the EU. To that end, it promotes cross-border trade and unhampered gas flows. The use of infrastructure in a network industry such as natural gas is generally non-substitutable. A natural gas shipper or a trader planning to cross a European border must generally interact with a new infrastructure operator. In order to facilitate cross-border trade and remove obstacles to the physical flow of gas across the internal energy market, it is crucial that interoperability between transmission systems is ensured.
- (2) The present Report assesses the European implementation of a set of technical rules ensuring interoperability as defined in the Network Code on Interoperability and Data Exchange (the ‘Code’).
- (3) Part I provides an overview and summarises the conclusions of the Report. It also details the approach followed by the Agency for the Cooperation of Energy Regulators (‘the Agency’) to monitor the implementation of the Code.
- (4) In Part I, we present:
 - a. the purpose and the structure of the Report;
 - b. the origins and rationale of the Code;
 - c. the Agency’s approach to monitoring the implementation of the Code; and
 - d. a summary of the main findings and recommendations of the Agency.

1.1 Purpose and Structure of the Report

1.1.1 Purpose of the Report

- (5) The Agency shall monitor the implementation of the Code². The primary purpose of the Report is to fulfil this legal obligation. The Report aims to highlight lessons learned so far from the implementation of the Code and to promote such implementation by:
 - a. identifying challenges in implementing the Code;
 - b. defining a framework to assess if and how the Code has been implemented;
 - c. assessing if this implementation resulted in reaching the primary objectives of the Code; and
 - d. providing local examples of potential problems and, where available, solutions.
- (6) Ultimately, the aim of this Report is to encourage a continuous process of self-evaluation by gas Transmission System Operators (‘TSOs’), National Regulatory Authorities (‘NRAs’) and market players, about both the compliance and effectiveness of the national implementation, based on factual evidence.

² See Article 9(1), third subparagraph, of Regulation (EC) no 715/2009 - the Agency “shall monitor and analyse the implementation of the network codes and the Guidelines adopted by the Commission [...] and their effect on the harmonisation of applicable rules aimed at facilitating market integration as well as on non-discrimination, effective competition and the efficient functioning of the market, and report to the Commission”.

1.1.2 Structure of the Report

- (7) The Report consists of three parts.
- (8) Part I provides the context in which the analysis was undertaken and presents the main conclusions reached.
- (9) Part II assesses the main features of the Code. It comprises three chapters, each of which is dedicated to a specific feature: i) interconnection agreements, ii) data exchange and iii) gas quality. The chapters compare the implementation results against the aim of the Code, and include feature-specific observations and recommendations.
- (10) Part III assesses the status of the Code implementation on a country-by-country basis, detailing the results of national implementation, based on the features already described in Part II.

1.2 Introduction to the Code

1.2.1 Origins and rationale of the Code

Origins of the Code

- (11) In 2012, the European Commission ('EC') initiated the development of the Code³. The Code was adopted by the European Commission as Commission Regulation (EU) No 2015/703 of 30 April 2015, after a development process in which both the Agency and ENTSOG were involved.
- (12) The Code applies to interconnection points ('IPs') within the EU⁴, with the exception of countries enjoying derogations⁵.

Rationale of the Code

- (13) Throughout the whole natural gas chain, from the production and the external borders of the EU to the transmission, storage, LNG and distribution and the delivery to final consumers, technical and operational rules and procedures need to be put in place and applied by TSOs in order to operate systems efficiently, safely and according to the needs of network users and adjacent system operators.
- (14) Before the opening of the electricity and gas sectors, a single party could be responsible for i) operating the infrastructures (transmission, distribution, LNG, storage); ii) inputting gas in the system, either from national sources of production or through contracts with parties located in other countries; iii) off-taking gas from the system in order to supply consumers or distribution systems; and iv) the local commercialisation of natural gas.
- (15) In that set-up, the necessary technical and operational rules and procedures were internal to the integrated company. Now that unbundling is enabling competition in European gas markets, the number of stakeholders and the interfaces between them have been multiplied. Interactions between TSOs at interfaces are codified by bilateral agreements, possibly including: i) technical parameters such as the capacity available for system users, based on a capacity calculation

³ On 31 January 2012, the European Commission initiated the drafting process by requiring that the Agency develops Framework Guidelines. Based on the Agency's Framework Guidelines of July 2012, the European Network of Transmission System Operators for Gas ('ENTSOG') developed a draft Network Code in close cooperation with the Agency and with the extensive involvement of stakeholders. On 10 September 2013, ENTSOG officially submitted to the Agency and to the European Commission the final version of Network Code. On 17 January 2014, the Agency issued its Recommendation to the European Commission to adopt the revised Network Code.

⁴ Energy Community Contracting Parties will follow the Code implementation based on deadlines agreed by their Ministerial Council. The implementation of the Code in these Countries is not in the scope of this Report.

⁵ Listed on page 12.

methodology; ii) operational procedures; and iii) communication protocols and information exchange, including data units.

- (16) Prior to the Code, the contents and terms and conditions for these bilateral agreements varied widely across Europe. A shipper would face different situations and potential barriers across Europe. The Code seeks to harmonise these agreements and to set minimum technical, operational and communication criteria.

1.2.2 Aims, aspirations and limitations of the Code

Overview of the Code

- (17) The Code facilitates market integration by imposing on TSOs a certain degree of harmonisation in technical, operational and communication interactions among themselves and with third parties.
- (18) The scope of the Code includes Interconnection Agreements-related rules, Units, Gas Quality and Odourisation, and Data Exchange.

Aspirations and limitations of the Code

- (19) Ideally, in a fully integrated system, the interoperability level is such that users of two or more transmission systems operated by separate entities in Europe do not face technical, operational, communications or business-related barriers higher than those that would have been reasonably expected if the relevant networks had been efficiently operated by a single entity.
- (20) However, the local reality of gas network operation may mean that some specificities may need to be included in the bilateral agreements between TSOs and third parties.
- (21) In addition, the Code amendment process is slow in comparison with the need for flexibility required at technical level to adapt to new situations or technologies.
- (22) Therefore, while the Code sets detailed principles, it is not fully prescriptive. Implementations need to take into account local commercial and physical realities, but must result in a *coherent set of rules* which enable market integration in the best possible way.

1.3 The Agency's approach for the current monitoring exercise

- (23) This is the first Report that the Agency produces to fulfil its legal monitoring obligation in respect of the Code⁶.
- (24) The following sections focus on:
- a. How the Code, including its implicit obligations, serves as a benchmark for the present assessment;
 - b. The information sources used for assessing the implementation of the Code;
 - c. The methodology applied to measure compliance with the provisions of the Code.

1.3.1 Monitoring with reference to implicit obligations

- (25) The Code sets objectives⁷ based on explicit obligations as well as implicit ones.
- (26) Assessing compliance with the detailed provisions of the Code is an important monitoring task. This Report seeks to assess, in a consistent manner, not only compliance of national implementation with the Code's specifications, but also the effectiveness of the Code implementation by

⁶ See footnote 2.

⁷ See Section 1.2.2.

considering how it enables market integration. Information sources are detailed in Section 1.3.2. The principles behind the methodology developed for this assessment are described in Section 1.3.3 below. The detailed methodology is presented in Part III - Countries Assessment, and a specific focus on the assessment of IAs is available in Annex 2.

1.3.2 Information sources and data collection

- (27) The information for this Report was provided for each EU Member State by the NRA and the TSOs in their joint responses to two surveys prepared by the Agency and ENTSOG respectively. These surveys cover all provisions of each chapter of the Code.
- (28) The outcome of the first survey was submitted by ENTSOG to the Agency as part of ENTSOG's monitoring obligations⁸ in September 2016. Further bilateral exchanges between the Agency and the NRAs took place between November 2016 and July 2017 with the aim of cleaning data and clarifying the information received. These dialogues allowed the collection of additional information and the most recent implementation updates, especially with respect to important changes or anticipated changes to national implementations. Finally, from 15 March to 30 April 2017, the Agency organised a public consultation on the implementation of the Code⁹.
- (29) The analysis was also open to updates on a voluntary basis from Member States currently enjoying a derogation on the basis of Article 49 of Directive 2009/73/EC: Cyprus, Estonia, Finland, Latvia, Luxemburg and Malta. These Member States did not contribute to the study, with the exception of the contribution of Luxemburg to the survey detailed in Annex 4.

19 Member States¹⁰ participated in the country assessments¹¹ developed by the Agency.

1.3.3 Methodology applied to measure compliance with the Code

- (30) The Report follows two approaches to derive conclusions:
- a. A specific assessment of the Code's features¹²; and
 - b. The individual assessment of EU regimes/ countries concerning the implementation of interoperability and data exchange rules¹³.

Policy assessment

- (31) Chapters 2.1 to 2.3 of the Report focus on:
- a. Gas Quality and Odourisation;
 - b. Data Exchange;

⁸ See Article 8(8) of Regulation (EC) no 715/2009 - "The ENTSO for Gas shall monitor and analyse the implementation of the network codes and the Guidelines adopted by the Commission in accordance with Article 6(11), and their effect on the harmonisation of applicable rules aimed at facilitating market integration. The ENTSO for Gas shall report its findings to the Agency and shall include the results of the analysis in the annual report referred to in point (e) of paragraph 3 of this Article."

⁹ See http://www.acer.europa.eu/Official_documents/Public_consultations/Pages/PC_2017_G_01.aspx

¹⁰ Subsequent discussions have taken place with the relevant NRAs. Where additional interpretation has been made this has been described in the text supporting the assessment, including references to publicly available documents.

¹¹ Countries' contributions are detailed in Part III - Countries Assessment.

¹² Part II – Analysis of the implementation of the main features of the Code.

¹³ Part III - Countries Assessment.

c. Interconnection Agreements.

- (32) The assessment includes a description of the key elements of the Code, including the primary objective of the Code and going beyond the individual Code provisions. It takes stock of the lessons learnt from the individual Member States.

Member State assessment

- (33) Part III comprises individual Member State assessments.
- (34) The Agency built a standard evaluation tool which enables individual Member State assessments. The tool assesses the compliance, coherence and effectiveness of the national implementations. This assessment is evidence-based and made objective by the use of a single assessment grid completed for each Member State.
- (35) Part III assesses whether the overall implementation is *consistent* with the Code requirements. The commentaries provided in these individual assessments may stimulate discussions within each Member State on which considerations might be relevant in the context of the implementation of Interoperability/ Data Exchange policies. Regime design and operation should not be considered to be static. For example, new gas sources may become available, requiring a new assessment in terms of gas quality.

1.3.4 Strengths and weaknesses of the Report

- (36) The Report assesses the effectiveness of the Code implementation and is not limited to checking the mere legal compliance.
- (37) The assessment takes into account the differences that may characterise the systems and therefore would lead to variations in the national implementations. Despite extensive discussions held with many NRAs to establish individual circumstances and implementation details, it is possible that approximations still exist in the information provided in this Report, in particular in the Country Assessment sheets, where the data gathered remains incomplete¹⁴.
- (38) Network users' perspective is based both on NRAs' input and a public consultation targeting stakeholders¹⁵. Feedback was provided for a small set of Member States and targeted the largest and more mature markets.
- (39) Finally, implicit obligations used as a benchmark may be seen as subjective. They are based on the Agency's understanding of the objectives pursued through the Code and should not be seen as legal obligations.
- (40) With these caveats, the Agency regards this Report as an attempt to objectively characterise progress towards the implementation of the Code based on the best information available to the Agency at the time of compiling the Report. In the coming years the investigation could go further, especially if more detailed data and evidence are provided.

¹⁴ See Part III - Countries Assessment.

¹⁵ See footnote 9.

1.4 Main conclusions and recommendations

- (41) This section presents a summary of the main results. Detailed issues and discussions which emerged during the monitoring exercise will be explored in the relevant chapters or referenced in the Member State assessment sheets, as appropriate.

1.4.1 Overall, there are currently no issues related to interoperability

- (42) Neither stakeholders nor NRAs reported any systemic problems in relation to the implementation of the Code¹⁶. Overall, the implementation is progressing as expected. In particular, the Agency notes that stakeholders gave positive feedback regarding the first edition of the Gas Quality Outlook published by ENTSOG¹⁷.

1.4.2 Several topics deserve a careful follow-up, as the impact of certain limitations in the implementation could not fully be assessed the Agency for the purpose of this Report.

- (43) The following local issues related to Gas Quality will deserve continuous regulatory oversight in the coming years¹⁸:
- a. Countries where L-gas is used may face temporary problems in the context of the phasing out of L-gas ;
 - b. While biogas is currently used locally, its increase in the domestic production may trigger cross-border impacts;
 - c. Issues regarding the Wobbe index are likely to re-enter the EU debate and will require consumers and producers better to coordinate and agree on a common position in the future.
- (44) More specifically, the implementation of provisions related to Data exchange and Interconnection Agreements could not be fully assessed for this Report:
- a. Regarding Data Exchange¹⁹, stakeholders are divided on the harmonisation proposal issued by ENTSOG. The impact on harmonisation will be measurable in 2018. The Agency will monitor the evolution of the implementation of the data exchange standard published by ENTSOG. The Agency recommends that this standard be adopted and used by all TSOs. The Agency recommends that NRAs act along the legal interpretation according to which TSOs are obliged to implement CNOTs, in line with the intent of the Code.
 - b. Regarding Interconnection Agreements²⁰, the Report only presents an assessment of a sample of EU IAs. Concerns over clarity and comprehensiveness will need to be confirmed by a systematic assessment of all IAs. This especially applies to the South South-East region. The Agency recommends that NRAs proactively assess that IAs are in place at all IPs in their system, and aligned with provisions set in the Code. Alternatively NRAs with less or limited technical resources may delegate this assessment to the Agency by giving access to the necessary information.

¹⁶ As revealed by the Agency's public consultation (see footnote 9 and Section 1.4.1).

¹⁷ See paragraph 36.

¹⁸ See Section 2.3.

¹⁹ See Section 2.2.

²⁰ See Section 2.1.

2. Part II – Analysis of the implementation of the main features of the Code

- (45) Part II provides a detailed analysis of the implementation of specific features of the Code. Each feature of the implementation is assessed against the aim of the Code. The assessment is followed by recommendations.
- (46) We assess the following features:
- a. Interconnection Agreements;
 - b. Data Exchange, and
 - c. Gas Quality and Odourisation.

2.1 Interconnection Agreements – a proactive regulatory assessment is needed

- (47) Provisions in Chapter III of the Code aim to harmonise the approach to IAs. This section assesses how those provisions are currently implemented.
- (48) In general, IAs assessed show levels of compliance of 85% or higher with the provisions set in the Code. The Agency recommends that by the end of 2020 NRAs proactively assess and report to the Agency, using the template developed for this Report²¹, whether IAs are in place at all IPs in their system, and they are aligned with the provisions set in the Code. Alternatively NRAs with less or limited technical resources may delegate this assessment to the Agency by giving access to the necessary information.

2.1.1 Interconnection agreements: the intent of the Code was a set of default agreements on identified topics.

- (49) Arrangements among TSOs at an IP are usually captured bilaterally in an IA. IAs define obligations and rights of the counterparts, under all conditions. These IAs facilitate operational cooperation between adjacent TSOs. They cover the following issues: information, data exchange, safety-related, physical & operational, commercial, and contractual issues.
- (50) When evaluating problems arising in relation to IAs²² prior to the drafting of its Framework Guidelines, the Agency reported existing IAs may be insufficient to support efficient trade and transportation of gas across an IP. The Agency supported some degree of harmonisation in the form of default agreements over a series of topics.
- (51) Topics and default agreements are explicit in the Code²³. The topics cover the following: flow control, measurement principles, and matching and allocation, as those were considered to be critical aspects in an IA. Other operational topics may be part of an IA, but those will be subject to bilateral agreements, unless regulated by EU legislation (e.g. renomination rules for balancing). The default agreements outlined in the Code facilitate the conclusion of IAs, in particular where the involved parties have difficulties to find a common ground.

²¹ See Annex 5.

²² Initial Impact Assessment Accompanying the document Framework Guidelines on Interoperability and Data Exchange Rules for European Gas Transmission Networks, Ref: ACER/AP/TQ/2012/992.

²³ See Annex 2 for a detailed legal basis.

2.1.2 Interconnection agreements: regulatory supervision is insufficient

- (52) The status of implementation of the provisions of the Code with respect to IAs was monitored based on two data sets:
- a. All IAs were self-evaluated by TSOs with respect to their compliance with the Code's provisions. This assessment was organised by ENTSOG (the "quantitative analysis"). Although this assessment was not backed by evidence, it allowed the Agency to get a general understanding of the extent to which IAs are addressing the topics listed in Article 3 of the Code;
 - b. 8 IAs²⁴ were screened by the Agency (the "qualitative analysis") in order to verify if the detailed rules are compliant with the Code. The Agency is currently not in a position directly and systematically to collect all IAs due to current constraints in resource and investigative powers of the Agency. IAs assessed for the current monitoring exercise were communicated by ENTSOG with the consent of NRAs on a voluntary basis. The assessment consisted in verifying that the mandatory topics were addressed in the IAs, to a sufficient level of detail
 - c. As part of the qualitative analysis, the Agency screened the templates for IAs published by ENTSOG, as good practice.
- (53) The screening methodology used by the Agency is detailed in Annex 2.
- (54) The quantitative analysis²⁵ reveals already that implementation is partial. The data provided by ENTSOG and updated by the NRAs in Table 1 shows that 6 IPs are not covered by an IA. A further 7 IPs in Table 2 are covered by IAs which do not cover all mandatory topics.

Table 1: IPs without IAs in the EU (2016)

IP code	TSOs	Member State
21Z000000000160X	Bulgartransgaz	BG
21Z000000000154S	FGSZ	HU
21Z000000000011D	Fluxys Belgium, GRTgaz	BE, FR
37Z000000001442N	GASCADE Gastransport, terranets bw	DE
21Z0000000003022	Transgaz	RO
21Z0000000003030	Transgaz	RO

Source: ENTSOG

Note: The table lists IPs on the side of which at least one TSO reported a missing IA. At certain IPs, one of the TSOs involved unilaterally reported a missing IA.

²⁴ The Agency was not in a position to screen all IAs. These IAs were chosen on a random route that connects countries in the Eastern part of the EU to countries in the Western part of the EU. The Agency focused on the IAs concluded after the entry into force of the Code. For a list of the IAs selected, see Annex 2.

²⁵ See Annex 2.

Table 2: IPs with incomplete IAs (2016)

IP NAME/ LOCATION	EIC or identifier for IP	TSO1	TSO2	3. b. Measurement principles for gas quantities	3.b Measurement principles for gas quality	3.f. Settlement of disputes	3.g. Amendment process
Bocholtz	21Z000000000071W	Open Grid Europe				In progress	In progress
Oude Statenzijl	21Z000000000075O	Open Grid Europe				In progress	In progress
Tegelen	21Z000000000117Y	Open Grid Europe				In progress	In progress
Bocholtz	21Z000000000204Z	Fluxys TENP				In progress	In progress
Steinitz	21Z000000000237O	ONTRAS	Open Grid Europe	Not applicable	Not applicable		
Lampertheim I	37Z0000000007905	GASCADE Gastransport	Open Grid Europe			Not applicable	Not applicable
Reckrod I	37Z000000004923T	Open Grid Europe	GASCADE Gastransport			Not applicable	Not applicable

Source: ENTSOG

Note: The table lists IPs on the side of which at least one TSO reported an incomplete IA. At certain IPs, one of the TSOs involved unilaterally reported an incomplete IA.

- (55) The qualitative analysis confirms the overall good level of compliance, with the exception of the IAs on the borders of Romania and Bulgaria, which show strong limitations.
- (56) The Agency recommends that the IA templates published by ENTSOG should be replaced with templates that are fully compliant with the Code.
- (57) Generally, the Agency observes that the quality of the texts of the IAs could be improved, in particular these texts shall be more comprehensive²⁶, clear and respect the full set of conditions outlined under Articles 6 to 12 of the Code. Special attention should be given to the implementation of Articles 6 (rules for flow control) and 9 (rules for the allocation of gas quantities). The Agency suggests the IA signed between Spain and Portugal as a good example in terms of structure and readability.
- (58) From the information collected by the Agency from NRAs²⁷, the Agency understands that most NRAs do not assess the compliance of IAs with the requirements set in the Code. This is regardless of whether IAs were concluded before or after the entry into force of the Code²⁸.

²⁶ See Table 13: Outcome of the qualitative analysis of IAs per topic.

²⁷ See Annex 4.

²⁸ 25% of the IAs concluded before the entry into force of the Code were assessed for compliance. 50% of the IAs concluded after the entry into force of the Code were assessed for compliance.

2.1.3 Interconnection agreements: The Agency recommends assessing compliance of all IAs in place

- (59) The Agency recommends that NRAs proactively assess if IAs are in place at all IPs in their jurisdiction, and if they are aligned with the provisions set in the Code. Alternatively NRAs with less or limited technical resources may delegate this assessment to the Agency by giving access to the IAs, including their annexes. In the coming four years, the Agency will seek to collect all IAs in place and screen them in collaboration with the NRAs²⁹.
- (60) The Agency recommends that those NRAs assessing IAs on their own apply the standard methodology set out in this Report. The Agency offers to illustrate its methodology to the NRA community. The Agency will focus its next screening exercise on those borders that face the greatest difficulties in implementing the Code.
- (61) The Agency requests ENTSOG to replace the IA templates on its website with IA examples that were implemented after the entry into force of the Code and that contain more comprehensive sections on flow control, measurement principles, matching and allocation. The Agency requests ENTSOG to take part in the evidence-based screening of the IAs in the future.

2.2 Data Exchange – the impact of differing interpretations of the Code must be monitored in the coming years

- (62) The Code seeks the harmonisation of Data Exchange practices. To that end, it mandates ENTSOG to develop a standard. The implementation of the standard is on-going. Delays are due to delays in ENTSOG publishing the standard, and differing interpretations of the legal requirements. The Agency will monitor the implementation of the standard in the future.

2.2.1 Data Exchange: the intent of the Code is a single European standard

- (63) The intent of the Code is to impose a single communication standard on all TSOs.
- (64) In its Initial Impact Assessment³⁰, the Agency identified that the variety of existing standards are a burden to small network users willing to expand their activities across borders. A public consultation confirmed stakeholders' support for data exchange harmonisation (16 positive answers out of 24).
- (65) To that end, in its Framework Guidelines³¹, the Agency stated that “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 counterparties.”

²⁹ The Agency suggests, as a first step, that NRAs identify IPs covered by similar IAs, and IAs which are strategic or problematic, in order to set an efficient screening strategy. The IAs, which play less critical role shall be the last ones screened.

³⁰[http://www.acer.europa.eu/official_documents/acts_of_the_agency/framework_guidelines/related%20documents/initial%20impact%20assessment%20\(iia\)_entsog.pdf](http://www.acer.europa.eu/official_documents/acts_of_the_agency/framework_guidelines/related%20documents/initial%20impact%20assessment%20(iia)_entsog.pdf).

³¹http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Framework_Guidelines/Related%20documents/FG%20on%20Interoperability%20and%20Data%20Exchange%20Rules%20for%20European%20Gas%20Transmission%20Networks.pdf.

2.2.2 Data Exchange: implementation is on-going

- (66) On 7 November 2016, ENTSOG published the CNOT on data exchange with a delay of six months³². The document sets a common standard for data exchange, i.e. the content and structure for the communication as well as the means for communicating. The delay was due to difficulties encountered within ENTSOG to reach an agreement.
- (67) Table 3 shows the current level of implementation of CNOTs. 11 out of 21 assessed Member States had implemented by 1 July 2017 or were, at that time, working on implementing the CNOT.

Table 3: CNOT implementation status across the EU (2017)

Implementation Status	Member States
CNOT in the process of being implemented	AT, BE, BG, DE,DK, IT,NL, PL, PT, SI, SK
CNOT is not implemented	EL, ES, FR, HR, HU, IE, SE, UK
No response	CZ, RO

Source: ACER

2.2.3 Data Exchange: the Agency calls on NRAs to promote the implementation of the CNOT.

- (68) Delays in the publication of the CNOT could explain delays in implementation. However, delays in implementation could also reflect an outright decision not to implement the CNOT. From discussions with NRAs, the Agency notes that two legal readings of the Code co-exist, and these readings confer diverging obligations for TSOs to implement the CNOTs³³. Further, the industry remains divided over the issue, and more precisely over the positive impact of the CNOT³⁴.
- (69) The Agency recommends that NRAs act along the legal interpretation according to which TSOs are obliged to implement CNOTs, in line with the intent of the Code.
- (70) The Agency will monitor implementation solutions which do not follow the common data exchange solution table published by ENTSOG. Depending on the extent of the problem, the Agency will indicate whether the Code should be clarified and amended to explicitly mandate TSOs to adopt and use the common data exchange solution table published by ENTSOG.
- (71) The Agency further suggests that ENTSOG tests in the coming year the conclusions which led to the current CNOT, assessing the degree of implementation of the standard and possible reasons for a delay in implementation.

2.3 Gas Quality and Odourisation

- (72) Provisions gathered in Chapter V of the Code harmonise the approach to Gas Quality and Odourisation. The following section assesses how those provisions are currently implemented. The Agency recalls the initial intent behind the policies and makes observations on their current implementation status. Implementation monitoring in this area covers measures related to the monitoring of Gas Quality (short term and long term) and the handling of potential barriers to trade due to differing standards of quality at the two sides of a given IP. Based on case studies, the Agency reports on local problems or recommends further monitoring.

³²<https://www.entsog.eu/publications/common-data-exchange-solution-table#COMMON-DATA-EXCHANGE-SOLUTION-TABLE>.

³³ For an overview of the legal debate, see Annex 6.

³⁴ For an overview of the process led by ENTSOG and the opinion of the industry over the outcome, see Annex 6, and in particular Table 15.

2.3.1 Gas Quality and Odourisation: the intent of the Agency was to provide more transparency and a framework for bilateral resolution of problems.

- (73) When the Agency conducted its initial impact assessment³⁵, no direct EU-wide technical barrier to trade which could result from the lack of harmonisation on gas quality parameters were observed. As regards Odourisation, the impact assessment identified a potential barrier to trade between France, Belgium and Germany.
- (74) Accordingly, the Framework Guidelines set the following objectives:
- a. regarding gas quality, enhanced transparency and TSO cooperation to anticipate issues, in the short term and in the longer term;
 - b. regarding odourisation, negotiated bilateral resolution of problems, with a shift towards physical flows of non-odorised gas as a default option.
- (75) Those objectives were reflected in the following provisions in the Code:
- a. **Article 15** on gas quality, and **Article 19** on odourisation set a framework for bilateral resolutions of barriers to trade;
 - b. **Articles 16 and 17** request additional transparency regarding short-term variations of gas quality;
 - c. **Article 18** requests the publication by ENTSOG of a bi-yearly outlook on the long-term evolution of Gas Quality in Europe.

2.3.2 Gas Quality and odourisation: ENTSOG's Gas Quality Outlook is useful but can be improved by including LNG

- (76) On 28 April 2017, ENTSOG published the first edition of the Gas Quality outlook³⁶ ('the Outlook'). The Outlook was annexed to the 2017 edition of the Ten-Year Network Development Plan ('TYNDP').
- (77) The methodology followed is a probabilistic approach based on historical Gas Quality data. The flow patterns applied are defined in the TYNDP. The exercise is conducted per region defined in Gas Regional Investment Plans (GRIPs), with the exception of UK and IE.
- (78) The Outlook does not offer any interpretation of the data. However, the aggregated figures show that Gas Quality is likely to remain stable in the next decade. The Outlook does not anticipate barriers to trade, nor issues in relation to security of supply.
- (79) The analysis was made by region. The conclusions reached confirm that this granularity is appropriate at this stage.
- (80) The analysis was made on the set of historical data available at the start of the exercise. It only takes account of pipeline gas, not of LNG projects.
- (81) In its public consultation³⁷, the Agency invited stakeholders to comment on the Outlook. Stakeholders supported the Outlook. The requests expressed related to ensure full transparency over the inputs to the analysis and the inclusion of new LNG projects.

³⁵[http://www.acer.europa.eu/official_documents/acts_of_the_agency/framework_guidelines/related%20document/s/initial%20impact%20assessment%20\(iia\)_entsog.pdf](http://www.acer.europa.eu/official_documents/acts_of_the_agency/framework_guidelines/related%20document/s/initial%20impact%20assessment%20(iia)_entsog.pdf).

³⁶ https://www.entsog.eu/public/uploads/files/publications/TYNDP/2017/entsog_tyndp_2017_Annex_G_GQA.pdf.

³⁷ http://www.acer.europa.eu/Official_documents/Public_consultations/Pages/PC_2017_G_01.aspx.

- (82) The Agency therefore calls on ENTSOG to i) provide full transparency over the inputs used for this edition of the Outlook after the publication of the Report and ii) update the next edition of the Outlook with the new LNG projects.

2.3.3 Gas Quality and odourisation: there is a need for further transparency regarding short-term Gas Quality variations

Table 4: Assessment of the implementation of Wobbe index publication obligations (2017)

Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	
Yes	AT, BE,ES,IT,NL,PL,PT,SI,SK,UK
No	AT,BG,EL,HR,HU,IE,SE
N.A.	CZ, DE*, DK*, FR*, RO

Source: ACER

Note: * See Part III – and the relevant country assessment for details about the missing information

- (83) Currently, only 13 Member States publish information related to the Wobbe index and GCV on an hourly basis, as requested by the Code.
- (84) The Agency will monitor the evolution of data publication for the next editions of the Report.

2.3.4 Gas Quality and Odourisation: there are currently no barriers to trade

- (85) The assessment conducted per Member State³⁸ reveals that most NRAs and TSOs did not proactively assess the existence of barriers to trade due to gas quality differences or odourisation. The general perception is that there are currently no problems. Such problems would be solved on an ad-hoc basis, should they arise. The Code foresees a process to resolve problems bilaterally should they arise.
- (86) This perception is confirmed by answers to the public consultation³⁹. No stakeholder reported a current barrier to trade. Potential future problems were reported in the contexts of L-gas and biogas, as illustrated by the following case studies. The case of L-gas is particularly relevant, since its offer is shrinking faster than demand decreases.

2.3.5 Gas Quality and Odourisation: case studies

Biogas in Denmark

- (87) Denmark set one of the most ambitious European goals in developing green gas, and in particular biogas.
- (88) Biogas is naturally rich in sulphur. Sulphur is highly corrosive. It must be reduced or removed from the gas before its injection in the transmission system. The most common approach uses oxygen. As a consequence of the desulphurisation, oxygen remains in the gas.
- (89) Denmark is both ambitious regarding the share of biogas in its gas mix, and it is also a relatively small country. As a consequence, the biogas injected in the Danish network is likely to cross a border with a neighbouring country.

³⁸ See Part III - Countries Assessment.

³⁹ See paragraph (37).

- (90) The gas quality standards applying to the German network⁴⁰ are not compatible with Danish biogas. The standard for allowed oxygen levels in the German grid is lower than the amount of oxygen in the Danish biogas. The main reason is that oxygen damages underground storages located near the Danish-German border.
- (91) Energinet, in cooperation with its German counterparts, developed a solution on the Danish side. It consists mainly in the co-mingling of biogas with natural gas, in order to lower the overall oxygen content of the gas reaching the German storage sites.
- (92) Such a solution is efficient insofar as the volumes of biogas in the gas systems remain low. The increase in the production of biogas in the coming years may require broader discussions concerning its treatment and cross-border trade. The Agency notes that the CEN standard is currently incompatible with biogas quality.

L-gas at the Dutch-German border

- (93) In Gronau-Epe⁴¹, Innogy developed a storage site with several cavities on the German side of the Dutch-German border. The storage is connected to both the German and the Dutch market. In theory, Innogy could inject and withdraw from and into any of these two markets. In practice, a difference in the gas qualities on the Dutch (G-gas)⁴² and on the German (L-gas)⁴³ side led to dedicating sections of the storage site to each of these markets.

Figure 1: Gronau - Epe storage site



Source: Innogy

- (94) The restriction comes from the Dutch side. The range of the Wobbe Index is narrower for G-gas than for L-gas. While in theory it only prevents injecting from the German side and withdrawing from the Dutch side, in practice, to avoid contamination of the G-gas with L-gas, it results in a total separation of the installation with no possibility of flows across the borders.
- (95) It is currently not possible physically to transport L-gas from Germany to the Netherlands. However, using a backhaul service (if forward flow exists), it is possible to virtually transport L-gas to the Netherlands. In addition, the Netherlands have a no-quality gas market. GTS will then convert the H-gas into L-gas through quality conversion. Shippers willing to obtain flexibility for household customers (connected to the G-gas grid) or who want to store G-gas into a storage can simply book H-gas. Costs for quality conversion are socialized over all network users. In other words, this does not necessarily restrict to contract L-gas flexibility.

⁴⁰ The limit in Germany is equal to the CEN standard: The mole fraction of oxygen shall be no more than 0,001 %, expressed as a moving 24h average.

⁴¹ <http://www.rwe.com/web/cms/en/531874/rwe-gasspeicher/locations/epe-l-gas/>.

⁴² G-gas stands for Groningen gas. It is a specific low-calorific natural gas (L-gas) produced from the large Dutch gas field in the province of Groningen.

⁴³ L-gas is of lower calorific value, as opposed to H-gas, of higher calorific value.

- (96) Therefore, shippers do not perceive any trading limitations on the borders.
- (97) Although there are no trading limitations, Innogy sees an interest for more physical flexibility in the L-gas market, on both the German and the Dutch side. The current storage capacity is sufficient to handle the current needs of the L-gas market. However, L-gas production currently decreases faster than consumption. As the L-gas market liquidity is decreasing with the production levels, more storage is needed to handle flexibility physically, and not only contractually. These needs may decrease in the course of the conversion process from L to H gas, started in 2015 on the German side⁴⁴. The Agency notes the importance of ensuring that flexibility needs are covered for the peak year when there will be maximum tension between supply and demand.

Odourisation: French-German and French-Belgian borders

France - Germany

- (98) The possibility of facilitating physical flows from France to Germany, with 100 GWh/d of firm exit capacity at the Obergailbach IP was studied by GRTgaz. GRTgaz concluded that such a project would require changes in odourisation practices and additional infrastructure to be constructed to allow the creation of capacity. Several options are considered, including a shift towards decentralised odourisation.
- (99) The total cost of the investments needed for the implementation of decentralised odourisation across the GRTgaz network and the construction of structures necessary for the flow reversal to Germany is estimated at around € 600 million. Pilot facilities are implemented by GRTgaz on two sites, at Etroeuingt and Bas Lieu (North) to assess in greater detail the technical feasibility and cost of this solution. Given the time required for the construction of the works, the project could not be envisaged to start operations before 2022. In addition, GRTgaz is studying alternative solutions based on the de-odourisation of gas flows to lower the overall costs of de-odourisation.

France- Belgium (to Germany)

- (100) France has two IPs with Belgium at Taisnières, one dedicated to H gas and the other L gas. A third IP with a capacity of 270 GWh/d was commissioned in Alveringem in late 2015. It can ship non-odorised gas to the north of France from the Dunkirk LNG terminal and from the Franpipe pipeline. The Dunkirk LNG terminal was commissioned in September 2016. The outcome of these projects will allow removing the obstacle posed by the odourisation of gas on the main transmission network in France, given that Belgium and Germany do not accept odorised gas in their transmission network.
- (101) It is planned that, from December 1, 2017, all capacity between France and Belgium will be commercialised via the newly created virtual IP ('VIP') Virtualys, linking the TSO networks of GRTGaz and Fluxys Belgium. The virtual IP Virtualys was created in accordance with Article 19 of the NC CAM⁴⁵. One of the benefits of this VIP is the overcoming of the physical constraint of moving gas from France to Belgium, which in the past resulted from differences in odourisation practices.
- (102) The Agency will monitor the evolution of these and similar cases in the coming years.

⁴⁴ FNB-Gas, Implementation Report 2017 (in German), Chapter 4: http://www.fnb-gas.de/files/2017_03_31_umsetzungsbericht_2017.pdf.

⁴⁵ Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0459&from=EN>.

3. Part III - Countries Assessment

- (103) This Part analyses the implementation of the Code in each Member State. It analyses the implementation of provisions concerning Interconnection Agreements, Gas Quality and Odourisation, and Data Exchange. It aims at gathering evidence of the approach followed to implement the Code.
- (104) The raw data used in this analysis is based on the survey conducted by ENTSOG among its members. NRAs were asked to verify the data and fill in the template outlined in Table 5.

Table 5: Template used for the evaluation of the implementation of the Code in each Member State

Type of feature	Topic	Relevant Code article	Feature	ENTSOG Answer	NRA confirmation	Evidence (link...)
General			TSO			
General			EIC/Identifier for TSO			
Operational	Interconnection Agreement	3	At each interconnection point an interconnection agreement is in place which covers at least the terms and conditions defined in articles 6 - 12 NC INT (Y/N).	(Y/N)		(1) In any case, please list the IP points and the date at which the agreement was concluded; (2) Additionally, if the answer is no, in addition to the previous list, please list the interconnection point(s) where currently no such interconnection agreement is in place. In addition, please indicate when this will be the case.
Operational	Interconnection Agreement	4.1	In each interconnection agreement the information that directly affects network users has been identified and network users were informed thereof.	(Y/N)		(1) If the answer is yes please give a link to the information contained in the IA that directly affects the network users; (2) If the answer is no please provide rationale
Operational	Interconnection Agreement	4.2	In case one or more interconnection agreements have been concluded or amended after application date of NC INT: network users have been provided the opportunity to comment on proposed content of aspects covered in article 3 (c, d, e) NC INT.	(Y/N)		If the answer is yes, please explain how this was done + evidence (link to e.g. TSO website where information is published); If the answer is no, please provide rationale
Technical	Gas Quality	15	Is there any cross-border trade restriction due to gas quality that cannot be avoided by the standard operations of the TSOs and that has been recognised by NRAs?	(Y/N)		(1) In any case: Please explain the process followed to determine whether any restrictions due to gas quality that restrict cross border trade exist + evidence (link to e.g. TSO website where information is published). (2) Additionally, if the answer is Yes (In case restrictions have been identified): at what border is the restriction occurring and what solution is envisioned or already in place. If no solution is found yet: please describe next steps.
Technical	Gas Quality	16	Are Wobbe Index and Gross Calorific Value published on your website for each IP that acts as an entry point and once per hour?	(Y/N)		(1) If the answer yes, Please provide evidence (link to e.g. TSO website where information is published). (2) If the answer is no please provide rationale
Technical	Gas Quality	19	Is there any cross-border trade restriction due to differences in odourisation practices that cannot be avoided by the concerned TSOs and that has been recognised by NRAs?	(Y/N)		(1) In any case: Please explain the process followed to determine whether any restrictions due to gas odourisation practices that restrict cross border trade exist + evidence (link to e.g. TSO website where information is published). (2) Additionally, if the answer is Yes (In case restrictions have been identified): at what border is the restriction occurring and what solution is envisioned or already in place. If no solution is found yet: please describe next steps.
Communication	Data Exchange	21	Do you use other common data exchange solutions than defined in article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	(Y/N)		(1) In any case: Please provide evidence (link to e.g. TSO website where information is published). (2) Additionally, if the answer is yes: please clarify if the regulatory authority approve the use of other data exchange solutions and provide a link to the regulatory decision
Communication	Data Exchange	24	The CNOT as developed by ENTSOG is applied (Y/N)	(Y/N)		(1) If the answer is yes, please provide evidence (link to e.g. TSO website where information is published). (2) If the answer is no, is there a reason other than that CNOT being voluntary? Please provide a problem analysis.

Source: ACER

(105) Table 6 lists NRAs which contributed to the analysis.

Table 6: NRA contributions to the assessments

INT	MS	Reply
AT	Austria	Yes
BE	Belgium	Yes
BG	Bulgaria	Yes
CZ	Czech Republic	No
DE	Germany	Yes
DK	Denmark	Yes
EE	Estonia	Exemption
EL	Greece	Yes
ES	Spain	Yes
FI	Finland	Exemption
FR	France	Yes
HR	Croatia	Yes
HU	Hungary	Yes
IE	Ireland	Yes
IT	Italy	Yes
LT	Lithuania	Not requested ⁴⁶
LU	Luxembourg	Exemption
LV	Latvia	Exemption
NL	The Netherlands	Yes
PL	Poland	Yes
PT	Portugal	Yes
RO	Romania	No
SE	Sweden	Yes
SI	Slovenia	Yes
SK	Slovakia	Yes
UK	Great Britain	Yes

Source: ACER

(106) The feedback received from TSOs – via the ENTSOG’s survey - and NRAs, for each Member State, is presented in the rest of this Part.

⁴⁶ While Lithuania is not exempted from applying the Regulation, according to Art. 1 (3) of Regulation 703/2015, “Regulation shall not apply to interconnection points between Member States as long as one of these Member States holds a derogation on the basis of Article 49 of Directive 2009/73/EC”.

3.1 AT - Austria

Topic	Article	Feature	ENTSOG	NRA	Evidence
TSO			Gas Connect Austria and TAG		
EIC/Identifier for TSO			21X-AT-B-A0A0A-K 21X-AT-C-A0A0A-B		
IA	3	IA in place	N	All IPs covered by IAs.	List of IPs provided to the Agency
IA	4.1	Network Users informed about IA impact	N	N - The information which affect the NUs is published on different documents (not just on the IA)	No Evidence
IA	4.2	IA concluded after application date of the Code	N	No IA has been amended after 30.04.2016. Possible amendements in the near future: IA Baumgarten under review and minor changes at network level - e.g. new metering stations	N.A.
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	No GQ issues. TSOs measure and determine the gas quality at the entry points. Austrian GQ standard is ÖVGW G31 - outside the standard TSOs may refuse the nominated gas -blending measures can be analysed. Shippers are deemed responsible for the gas quality.	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	N	Y - hourly data is published once per day.	https://platform.aggm.at/mgm/visualisation.do?hid=1d8f4fd9fb0963006f0398fb68a35390&type=ENTRY_EXIT
GQ	19	cross-border restrictions due to odourisation	N	No odourisation issue. Application of Austrian standard ÖVGW G31 (see above) Bilateral resolution of eventual problems.	No assessment of potential problems in association with gas odourisation has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y - Alternative solutions in use listed in the Gas Market Rules Chapters 2 and 3	https://www.e-control.at/documents/20903/-/94b9f40b-7ddf-4d27-87e0-a724a2c95ee6 https://www.e-control.at/documents/20903/-/dde8547e-cb82-4957-828c-28e31e34eacd
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	Y - TSOs implemented CNOT for REMIT, PRISMA auctions and for Austrian internal balancing activities.	https://www.e-control.at/documents/20903/388512/20160826+Sonstige+Marktregeln+Kapitel+2+%28MG+Ost%29.pdf/5d9bc91b-5b2c-4631-98b9-3151bf1a65e6

3.2BE- Belgium

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Fluxys Belgium		
		EIC/Identifier for TSO	21X-BE-A-A0A0A-Y		
IA	3	IA in place	N	In progress for IPs - Blaregnies (BE) / Taisnières (L) (FR) Poppel (BE) // Hilvarenbeek/Zandvliet-L (NL) s Gravenvoeren Dilsen (BE) // 's Gravenvoeren/Obbicht (NL) Zandvliet H-gas Zelzate 1 (BE) // Zelzate (NL)	Status of the concerned Interconnection Agreements: - IUK: signed - OGE, Fluxys-TENP, Thyssegas: signed - Gascade: signed - GTS (H-gas): signed - GTS (L-gas): (IA based on ENTSOG Template) ongoing/ signed - GRTgaz (H-gas): signed - GRTgaz (L-gas): ongoing/signed
IA	4.1	Network Users informed about IA impact	Y	TSOs sent e-mail to Nus to announce the consultation + reference to consultation link	http://www.fluxys.com/belgium/en/Services/Transmission/MarketConsultations/HistoryConsultations
IA	4.2	IA concluded after application date of the Code	Y	Y	IAs signed with IUK, GTS (H & L Gas)
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	There are no restrictions. In the context of TENP reverse flows, GQ issues addressed (see link)	http://www.fluxys.com/group/en/newsandpress/2015/151119_reverseflow
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	http://www.fluxys.com/belgium/en/Services/Transmission/Contract/~media/Files/Services/Transmission/ServicesAndModels/fluxys_operatingconditions_qualityrequirements.user_manual_link https://gasdata.fluxys.com/media/1057/user-manual.pdf
GQ	19	cross-border restrictions due to odourisation	N	There are no restrictions. In the context of TENP reverse flows, a deodorisation plant is foreseen (see link)	http://www.fluxys.com/group/en/newsandpress/2015/151119_reverseflow
DE	21	Use of data exchange solutions alternative to article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT.	Not covered by ENTSOG survey	AS4 implemented; AS2 still supported (and used by all actual grid users)	AS4 : cf Access Code for Transmission, attachment C1 – section 2.2
DE	24	The CNOT as developed by ENTSOG is applied	Not covered by ENTSOG survey	TSO was asked to check update with ENTSOG. Implementation edig@s messages expected by Nov 2017 (Cf. Consultation 23)	cf. consultation 23 (point 3 in one page note) (http://www.fluxys.com/belgium/en/Services/Transmission/MarketConsultations/~media/Files/Services/Transmission/ConsultationPlatform/Consultation23/Consult23_DescriptionOfChanges.aspx)

3.3BG - Bulgaria

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Bulgartransgaz		
		EIC/Identifier for TSO	21X-BG-A-A0A0A-C		
IA	3	IA in place	Y	N	<p>1. Kulata (BG) / Sidirokastron (GR) - IA concluded on 24.06.2016</p> <p>2. Negru Voda I (RO) / Kardam (BG) - IA concluded on 14.07.2016</p> <p>3. Negru Voda II, III (RO) / Kardam (BG) - IA in progress</p> <p>4. Ruse (BG)/Giurgiu (RO) - IA concluded on 03.01.2017</p>
IA	4.1	Network Users informed about IA impact	Y	Y	<p>https://www.bulgartransgaz.bg/en/news/publichna_konsultaciya_na_biznes_p_ravilata_i_procedurite_za_komunikaciya_v_sluchai_na_izvanredni_sabitiya-259-c15.html</p> <p>https://www.bulgartransgaz.bg/en/news/publichna_konsultaciya_na_biznes_p_ravila_i_izvanredno_sabitie_ot_proekt_na_versiya_2_0_na_sporazumenie_-272-c15.html</p>
IA	4.2	IA concluded after application date of the Code	Y	Y	<p>https://www.bulgartransgaz.bg/en/news/publichna_konsultaciya_na_biznes_p_ravilata_i_procedurite_za_komunikaciya_v_sluchai_na_izvanredni_sabitiya-259-c15.html</p> <p>https://www.bulgartransgaz.bg/en/news/publichna_konsultaciya_na_biznes_p_ravila_i_izvanredno_sabitie_ot_proekt_na_versiya_2_0_na_sporazumenie_-272-c15.html</p>
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N		<p>No restriction has been reported. The minimal requirements of gas quality were determined and approved by EWRC on 30.06.2004 https://www.bulgartransgaz.bg/en/pages/gas-requirements-60.html</p> <p>No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.</p>
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	N		<p>Currently the Wobbe Index and GCV are published on the web site for each IP that act as entry point once per hour based on once per day measuring, except IP Ruse (BG)/Giurgiu (RO) where there is an once per hour published data.</p> <p>https://www.bulgartransgaz.bg/en/pages/sertifikat-46.html</p>
GQ	19	cross-border restrictions due to odourisation	N		<p>The odourisation practices are obligation of the DSO's at the city gates. The TSO has no obligation related to odourisation</p> <p>No assessment of potential problems in association with gas odourisation has been conducted in the context of the implementation of the Code.</p>
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	N	<p>https://www.bulgartransgaz.bg/download/index/file/ZmlsZXMmbGVnaXNsYXRpb24vZmlsZS9maWxlLTMOLTEtNDg5My5wZGY%3D/lang/en</p>
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N	<p>N -We are in testing phase with implementation of AS4 profile.</p> <p>https://www.bulgartransgaz.bg/download/index/file/ZmlsZXMmbGVnaXNsYXRpb24vZmlsZS9maWxlLTMOLTEtNDg5My5wZGY%3D/lang/en</p>

3.4 DE- Germany

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Bayernets, Fluxys TENP, GASCADE Gastransport, Gastransport Nord, Gasunie Deutschland Transport Services, GRTgaz Deutschland, jordgas Transport, LBTG, Nowega, ONTRAS, OPAL Gastransport, Open Grid Europe, terranets bw, Thysengas		
		EIC/Identifier for TSO	21X-DE-A-A0A0A-A; 21X000000001133M; 21X-DE-H-A0A0A-L; 21X000000001132O; 21X-DE-D-A0A0A-K; 21X000000001008P; 21X000000001189W; 21X0000000011309B; 21X-DE-C-A0A0A-T; 21X-DE-F-A0A0A-2; 21X0000000011845; 21X-DE-C-A0A0A-T; 21X000000001163D; 21X-DE-G-A0A0A-U		
IA	3	IA in place	Y	In progress for IP: Lampertheim IV (operated by GASCADE Gastransport and terranets)	No evidence
IA	4.1	Network Users informed about IA impact	Y	<p>(1) All relevant information to be found in Annex 1 of the Cooperation Agreement between the Operators of Gas Supply Networks in Germany.</p> <p>(2) some TSO published information with regard to Art. 4 (1) NCINT on their websites (see links).</p> <p>(3) REMIT information is published on the TSO website.</p>	<p>http://www.fluxys.com/tenp/de/Services/TermsAndConditions/TermsAndConditions1</p> <p>https://www.open-grid-europe.com/cps/rde/ogei-internet/hs.xsl/Information-zu-Artikel-4-1-des-Verordnung-EU-2015-703-Network-Code-Interoperability-2299.htm?rdeLocaleAttr=en&rdeCOQ=SID-D231A2C0-2D012D7C</p> <p>https://www.terranets-bw.de/en/gas-transmission/gas-grid-information/</p> <p>https://www.terranets-bw.de/fileadmin/user_upload/PDF/Erdgas/Netztransparenz/Vertraege%20Richtlinien/160630_Geschaeftsbedingungen_gem_Anlage_1_KoV_IX_guelting_ab_01.10.2016.pdf</p> <p>https://www.gascade.de/fileadmin/downloads/netzzugang/ab_1610/GASCADE_AGB_April_2017.pdf</p> <p>http://www.thysengas.com/en/network-enquiries/transparency-information/</p> <p>http://www.thysengas.com/en/network-enquiries/transparency-information/interconnection-and-crossborderpoints-under-section-40-1-of-the-german-gas-grid-access-regulations-gasnzv/</p> <p>http://www.bayernets.de/start_netzinformation_en.aspx?int_name=_75335</p> <p>https://www.gasunie.de/en/main-menu/transparency-information/remitt-disclosures/customer-information/2016-2/information-zu-artikel-41-der-verordnung-eu-2015703</p> <p>https://www.gasunie.de/en/main-menu/transparency-information/remitt-disclosures/customer-information/2016-2/information-zu-artikel-41-der-verordnung-eu-2015703</p> <p>http://www.lbtg.de/cps/rde/xchg/SID-16132451-E3F6CB5D/lbtg/hs.xsl/465.htm?rdeLocaleAttr=en</p> <p>https://www.nowega.de/en/network_transparency/publication_obligations/publication_obligations_in_accordance_with_regulation_eg_no_715_2009_1.html</p> <p>https://gtg-nord.de/uploads/live/dms/114/20152110_gtc_ee_v5_2.pdf</p> <p>http://www.fluxys.com/nel/en/NetworkAccess/TermsAndConditions</p> <p>http://www.grtgaz-deutschland.de/en/transparenz/transparencyinformation</p> <p>https://ivo.nel-gastransport.biz/ivo/remitt?0</p>
IA	4.2	IA concluded after application date of the Code	Y	Y	<p>(1) Bocholtz and Eymatten 2 (BE) // Lichtenbusch / Raeren (DE) operated by TSO Fluxys TENP.</p> <p>(2) Waidhaus operated by TSO GRTgaz Deutschland</p> <p>(3) Bunde/Oude Statenzijl operated by TSO Gascade Gastransport. (consultation in March / April 2017)</p>
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	No Evidence Incomplete data on the transparency platform
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with odourisation has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y - Next to the common data exchange solutions predetermined by Art. 21 NC INT, the TSOs are allowed to use protocol AS2 and data format edifact until 31.01.2018 due to a BNetzA decision according to Art. 23 (2) NC INT.	Decision BK7-16-042 of 26 April 2016 https://www.bundesnetzagentur.de/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK7-GZ/2016/2016_0001bis0999/2016_0001bis0099/BK7-16-0042/BK7-15-0042_Beschluss__BF_download.html
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	Yes	No evidence

3.5DK - Denmark

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Energinet.dk		
		EIC/Identifier for TSO	10X1001A1001A248		
IA	3	IA in place	Y	Y	Dragør: 3 October 2014 Ellund: 22 February 2007 Ellund: 22 February 2007
IA	4.1	Network Users informed about IA impact	N	N	No Evidence
IA	4.2	IA concluded after application date of the Code	N	N	N.A.
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	No evidence
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with odourisation has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y Edigas XML. . AS2 in place AS4 is under way	No Evidence
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N - ongoing development of SSN and AS4	No Evidence

3.6 EL - Greece

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	DESFA		
		EIC/Identifier for TSO	21X-GR-A-A0A0A-G		
IA	3	IA in place	Y	N	(1) There is an IA for the operation of the IP [Kulata (BG)/Sidirokastron (GR)], in force since the 1st of July 2016. Version 1 ended in May and was succeeded by version 2 since June 2017 to incorporate the option of 35 renominations at the IP. http://www.desfa.gr/wp-content/uploads/2017/05/IA-V2-0_BusinessRules.pdf (2) There is no IA for the operation of the interconnection point at the Greek – Turkish border [Kipi]. RAE has no information on DESFA - BOTAS discussions.
IA	4.1	Network Users informed about IA impact	Y	Y	http://www.desfa.gr/?p=10803&lang=en
IA	4.2	IA concluded after application date of the Code	N	Y. Before the conclusion of version 1 of the IA, DESFA and Bulgatransgaz launched a common public consultation from 11.06.2015 to 25.06.2015. After the conclusion of the IA, DESFA, under the provisions of article 21 of the Greek Network Code, published the operational rules of the signed IA . Additionally, both TSOs agreed on the revision of the Business Rules of the IA fully compatible with the EU Regulations. The revised business rules have been put in public consultation from 30.01.2017-22.02.2017 and version 2 of the IA is expected to be in place by the 1st of June 2017.	11.06.2015: http://www.desfa.gr/?p=6834&lang=en 27.11.2016: http://www.desfa.gr/?p=10803&lang=en 30.01.2017: http://www.desfa.gr/?p=12699&lang=en
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	N	N. GCV published daily, Wobbe Index published yearly	http://www.desfa.gr/?page_id=2913&lang=en
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with odourisation has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y. E-mail exchange is used. However the revised IA (forthcoming version 2 of the IA) foresees the use of Edig@s-XML format	http://www.desfa.gr/?p=12699&lang=en
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N	No Evidence

3.7ES – Spain

Topic	Article	Feature	ENTSOG	NRA	Evidence
			TSO Enagas		
		EIC/Identifier for TSO	21X-ES-A-A0A0A-T		
IA	3	IA in place	Y	Y	IA VIP Pirineos (18th January 2017) and IA VIP Ibérico (22th February 2017)
IA	4.1	Network Users informed about IA impact	N	Y	http://enagas.es/enagas/en/Gestion_Tecnica_Sistema/Consulta_publica/Interconnection_Agreement_VIP_PIRINEOS http://enagas.es/enagas/es/Gestion_Tecnica_Sistema/Consulta_publica/Interconnection_Agreement_VIP_Iberico
IA	4.2	IA concluded after application date of the Code	N	Y	http://enagas.es/enagas/en/Gestion_Tecnica_Sistema/Consulta_publica/Interconnection_Agreement_VIP_PIRINEOS http://enagas.es/enagas/es/Gestion_Tecnica_Sistema/Consulta_publica/Interconnection_Agreement_VIP_Iberico
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	http://www.enagas.es/enagas/en/Transporte_de_gas/Medicion_y_calidad_de_gas/Publicacion_de_Calidad_de_Gas_Horaria
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y - All the data exchange solutions used in the communications in Spain, already existing before the entry into force of the IO NC, are fully compliant article 21. Two different data exchange solutions are used in Spain: (1) HTTP/S-SOAP and Edig@s format – “integrated” and (2) A web interface with HTTP/S protocol – “Interactive”. While both solutions are available only the “integrated” solution is used.	http://www.enagas.es/stfs/ENAGAS/Gesti%C3%B3n%20T%C3%A9cnica%20del%20Sistema/Documentos/Welcome%20Manual%20New%20agents.pdf
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N - The “Document based” CNOT solution has not been implemented in Spain, given that (1) the existing solutions are fully compliant with the IO NC and (2) existing solutions cover all of users' needs (HTTP/S-SOAP with Edig@s format used by “big” users focusing on automatization; Interactive solution used by “small” users focusing on low IT costs). No network user requested a “Document based” solution. To avoid unnecessary costs, the TSO has not implemented the AS4 solution.	No Evidence

3.8FR – France

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	GRT GAZ and TIGF		
		EIC/Identifier for TSO	A0A0A-S and 21X-FR-B-A0A0A-J(TIGF)		
IA	3	IA in place	N	N (The only IP currently without an IA is Blaregnies L (BE)/Taisnières L(FR). A public consultation took place between 6 January and 5 March 2017. The IA is expected in the coming months.	Blaregnies H (BE)/Taisnières H(FR): 22 november 2007 Medelsheim(DE)/Obergaibach(FR): 22 november 2007 Pirineos (FR/SP): 16 December 2016
IA	4.1	Network Users informed about IA impact	N	Y	http://www.grtgaz.com/en/access-direct/customer/supplier-trader/access-to-contracts.html No Evidence regarding TIGF
IA	4.2	IA concluded after application date of the Code	N	Y All the IA implemented after the entry into force of the NC IO (Pirineos and Taisnières B) have been subject to public consultation according to article 4.3.	No Evidence
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	http://smart.grtgaz.com/en/flux_physiques_horaires/PIR
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	No answer	No evidence
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	No answer	No evidence

3.9HR- Croatia

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Plinacro		
		EIC/Identifier for TSO	21X-HR-A-A0A0A-4		
IA	3	IA in place	Y	Y	1) Rogatec Agreement date - 23rd October 2014 Amendment 1 date - 29th April 2016 2) Dravaszerdahely Agreement date - 1st October 2015 Amendment 1 date - 1st March 2016
IA	4.1	Network Users informed about IA impact	Y	N	No Evidence According to TSO: http://www.plinacro.hr/default.aspx?id=592 but NRA can not clearly identify IA issues
IA	4.2	IA concluded after application date of the Code	N	N	TSO argues that IAs and ammendements were signed before NC INT entered into force so no public consultations took place.
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	N	N	No Evidence
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	N	No Evidence According to TSO: http://www.plinacro.hr/default.aspx?id=592 but NRA can not clearly identify data exchange solutions
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N	No Evidence According to TSO: http://www.plinacro.hr/default.aspx?id=592 but NRA can not clearly identify CNOT

3.10 HU – Hungary

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	FGSZ		
		EIC/Identifier for TSO	21X-HU-A-A0A0A-8		
IA	3	IA in place	Y	Y - The IA between FGSZ and GCA foresees an amendment related to the introduction of single side nominations. TSOs are running tests to implement a safe SSN	No Evidence
IA	4.1	Network Users informed about IA impact	N	Y - According to our current knowledge there is nothing in the IA that concerns network users and is not published in a different manner.	No Evidence
IA	4.2	IA concluded after application date of the Code	N	Y - All IA-s were signed before the NC INT entered into force. The amendment on the IP Mosonmagyaróvár will be the first to change but the process is still ongoing.	No Evidence
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	N	N - Currently only daily data is provided. The hourly publication is under development.	No evidence
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y - TSO has the ability to use Article 21. point 2. a)-c) data protocols and formats.	No evidence
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	No answer	No evidence

3.11 IE- Ireland

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Gas Networks Ireland	Gas Networks Ireland	
		EIC/Identifier for TSO	47X0000000000576	47X0000000000576	
IA	3	IA in place	Y	Y	Moffat IP: 21Z000000000081T; October 2015 Gormanston IP: 21Z000000000283H; April 2016
IA	4.1	Network Users informed about IA impact	Y	Y	The IA is not published on the TSO website.
IA	4.2	IA concluded after application date of the Code	Y	Y - Information is not published on the TSO website.	No Evidence
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	N	N - The TSO website is currently being updated with system data and this can be looked at.	No Evidence
GQ	19	cross-border restrictions due to odourisation	N	N - Odourised at Moffat (entry on to Transmission system)	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NCINT. (Y/N)	Not covered by ENTSOG survey	No answer	No evidence
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	No answer	No evidence

3.12 IT – Italy

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Snam Rete Gas	Snam Rete Gas	
		EIC/Identifier for TSO	21X-IT-A-A0A0A-7	21X-IT-A-A0A0A-7	
IA	3	IA in place	Y	Y	IA Tarvisio signed on 30/04/2016 (last revision) IA Gorizia signed on 29/04/2016 (currently under revision, consultation ongoing from 18th April to 20th May 2017)
IA	4.1	Network Users informed about IA impact	Y	Y - Network users are informed via SRG Network Code about the information directly affecting them and included in the IAs	http://www.snamretegas.it/en/services/Thermal_Year_2016_2017/Info-to-users/3_piani-eser-inter.html
IA	4.2	IA concluded after application date of the Code	N	Y - Amendment to Gorizia IPs on aspects covered in article 3c is ongoing	http://www.snamretegas.it/en/media/news-network/2017/20170418_interconnection_agreement.html
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	Additionally to EU IPs the data are provided for non-EU IPs and LNG terminals: http://www.snamretegas.it/en/services/Gas_transportation/0-Physical_Flows_on_the_national_network/
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	In progress: from October 2017 Integrated data exchange via data format X12 planned to be substituted by document based with protocol AS4 and data format Edig@s-xml.	Solution currently used: - Integrated data exchange, based on HTTP/S push as protocol and X12 as data format (approved by NRAs as included in SRG Network code). The link with related information on TSO website is the following: http://www.snamretegas.it/export/sites/snamretegas/repository/file/dialoga_con_noi/news/TechnicalSpecification_v0_8.pdf - Interactive, based on HTTP/S - Document based: introduction of AS4 and Edig@s-XML from October 2017.
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	YES - ENTSOG has confirmed that 12 months are available to TSOs for the implementation of the CNOT from the date they were approved. Consequently, the deadline for CNOTs implementation is 1st November 2017. For this date SRG is planned to be compliant with CNOTs (introduction of AS4 from 1st Oct 2017)	No evidence

3.13 NL – The Netherlands

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	GTS		
		EIC/Identifier for TSO			
IA	3	IA in place	Y	All IPs covered by IAs. The interconnection at Emden EPT between NL/Norway is not an IP under (third county point)	List of IP provided
IA	4.1	Network Users informed about IA impact	Y	Since 1 May 2016, IA signed with Fluxys and Gascade . Users invited to comment on: a) rules on matching process, b) rules for allocation of gas quantities and c) communication procedures in case of exceptional events.	Links no longer active. Screenshots made available
IA	4.2	IA concluded after application date of the Code	Y	Since 1 May 2016, IA signed with Fluxys and Gascade . Users invited to comment on terms and conditions	Links no longer active. Screenshots made available
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	GQ defined in by ministry ('MR gaskwaliteit'). GTS, Fluxys and neighbouring TSOs analysis showed convergence except on few parameters (no longer agreement). In practice the differences are mitigated as follows: a. gas flows physically in the 'right' direction; the receiving party has a broader spec and in practice no problem b. in case gas flows not in the 'right direction', a worst case approach was applied such as swapping or co-mingling.	Regional assessment (BE, NL, DE)
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	On the GTS website, in 'Dataport', for each IP data can be found on an hourly basis on Wobbe index and Gross Calorific Value (in dataport referred to as Hs: highly combustion superior).	https://www.gasunie transportservices.nl/transparency/dataport . Within dataport, users can click on the link 'Flows, Calorische waarden en Wobbe'.
GQ	19	cross-border restrictions due to odourisation	N	odourisation cannot hinder cross-border trade.	Gas only odorised once it has entered the regional transmission pipelines. Gas reaching the regional level never goes back to the main system. All gas import points are non-odorised and connected to the main system
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	In 2016, GTS was granted approval by ACM to temporarily (until 3 May 2018) use the AS2 protocol. The reason for a temporary approval is explained by the fact that ACM considers the AS2 protocol after the mentioned date no longer fully safe. For the avoidance of doubt: GTS uses the AS2 protocol next to the AS4 protocol , which is mandatory based upon the NC INT.	ACM decision: https://www.acm.nl/nl/publicaties/publicatie/15805/GTS-mag-protocol-voor-uitwisseling-gegevens-tijdelijk-nog-gebruiken/ .
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	GTS applies many of the solutions as prescribed in the CNOTs - in place before the CNOTs became official.GTS does not apply the CNOT solution for 'surrendered capacity sold'. The reason is that this is not necessary for shippers, because in Gasport (a portal) shippers can see how much capacity is surrendered.	No evidence

3.14 PL - Poland

Topic	Article	Feature	NRA check	Evidence
		TSO	GAZ-SYSTEM	
		EIC/Identifier for TSO	21X-PL-A-A0A0A-B	
IA	3	IA in place	Y	1. Cieszyn (PL) / Český Těšín (CZ) - interconnection agreement signed on 14.09.2011; 2. GCP GAZ-SYSTEM/ONTRAS - interconnection agreement signed on 25/28.01.2016; 3. Mallnow - interconnection agreement signed on 29.04.2016
IA	4.1	Network Users informed about IA impact	Y	1. Cieszyn (PL) / Český Těšín (CZ) - no public consultation was held as the interconnection agreement was signed before the application of the Interoperability NC; 2. GCP GAZ-SYSTEM/ONTRAS - as above;
IA	4.2	IA concluded after application date of the Code	Y - Mallnow - public consultation was held from 29.02.2016 to 29.04.2016; the provisions of the interconnection agreements were implemented in the TNCs (public consultation precedes the approval of TNCs or their amendment).	http://www.gaz-system.pl/strefa-klienta/konsultacje-z-rynkami/zakonczone-procedury/2016/ http://en.gaz-system.pl/centrum-prasowe/aktualnosci/informacja/artikul/202357/ http://en.gaz-system.pl/centrum-prasowe/aktualnosci/informacja/artikul/202413/
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N - gas parameters specified in the TNCs and published on OGP GAZ-SYSTEM S.A.'s website are compliant with gas parameters in adjacent EU Member States. No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code	http://en.gaz-system.pl/strefa-klienta/system-przesylowy/parametry-charakteryzujace-jakosc-przesylanego-gazu/
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	https://swi.gaz-system.pl/swi/public/embed.seam?viewid=E_GCV_D&lang=en
GQ	19	cross-border restrictions due to odourisation	N - according to the regulation of the Minister of Economy of 2nd July 2010 on the gas system functioning in Poland the DSOs are responsible for the odourisation (§ 38 comma 3 and point 4.1.6 of the annex to the regulation) - as in the adjacent EU Member States.	http://isap.sejm.gov.pl/DetailsServlet?id=WDU20101330891
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	N	http://en.gaz-system.pl/centrum-prasowe/aktualnosci/informacja/artikul/202337/ http://en.gaz-system.pl/strefa-klienta/dobrobrania/wymiana-danych/protokol-as4/
DE	24	The CNOT as developed by ENTSOG is applied.	Y	http://en.gaz-system.pl/centrum-prasowe/aktualnosci/informacja/artikul/202337/ http://en.gaz-system.pl/customer-zone/download/information-exchange/edigs/ http://en.gaz-system.pl/strefa-klienta/dobrobrania/wymiana-danych/nominacje/sposoby-skladania-nominacji/

3.15 PT - Portugal

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	REN - Gasodutos		
		EIC/Identifier for TSO	21X-PT-A-A0A0A-Y		
IA	3	IA in place	Y	Y	IP VIP Ibérico - EIC: physical points: - Valença do Minho (PT) / Tuy (ES) - EIC: 21Z0000000000580 - Badajoz (ES) / Campo Maior (PT) - EIC: 21Z000000000062X - IA signed at 14-02-2014 - IA non-confidential text in result of the public consultation, published at 23-02-2017
IA	4.1	Network Users informed about IA impact	N	Y	https://www.ign.ren.pt/web/guest/interconecton-agreement-vip-iberico
IA	4.2	IA concluded after application date of the Code	Y	Y	https://www.ign.ren.pt/web/guest/interconecton-agreement-vip-iberico
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N - Gas Quality Specification in Portugal similar to Spain; LNG imports comply Gas Quality Specification in the Iberian Peninsula.	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	https://www.ign.ren.pt/en/monitorizacao-horaria-qualidade
GQ	19	cross-border restrictions due to odourisation	N	N - In Portugal, the gas in non-odourized in the transmission network.	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	N - Document: "S-00000- SPC-SII-1602 - Intercambio de Dados"; an update is under development for compliance with new Network Codes.	https://www.ign.ren.pt/web/guest/gestao-tecnica
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	Y	https://www.ign.ren.pt/web/guest/gestao-tecnica

3.16 SE – Sweden

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Swedegas AB		
		EIC/Identifier for TSO	21X-SE-A-A0A0A-F		
IA	3	IA in place	Y	Dragör - 21Z000000000027Z. Agreement concluded between Swedegas and Energinet 3rd of October 2014.	
IA	4.1	Network Users informed about IA impact	N	N	No Evidence
IA	4.2	IA concluded after application date of the Code	N	N	No Evidence
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	No cross-border trade restriction due to gas quality exists. Swedegas (and Energinet) following ISO standards for gas quality and publishes the gas quality at https://www.swedegas.se/gas/gaskvalitet/gaskvalitet_i_sverige .	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	N - Only Gross Calorific Value is presented	https://www.swedegas.com/Our_services/services/statistics and choose "Gas quality" - "Heat value Dragör", then period and then presentation method.
GQ	19	cross-border restrictions due to odourisation	N	Gas odourisation is mandatory in Sweden and this is being done just after the entry point, in Klagshamn. No info at website available.	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	No, between Swedegas and Energinet Edig@s is used. No info at web page available. Between Swedish actors an Ediel standard is used today.	No Evidence
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N, since this is on voluntary basis.	No evidence

3.17 SI – Slovenia

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	Plinovodi		
		EIC/Identifier for TSO	21X-SI-A-A0A0A-8		
IA	3	IA in place	Y	Y	Murfeld (AT) / Ceršak (SI), last amendment concluded on 29. 4. 2016 Gorizia (IT) / Šempeter (SI), last amendment concluded on 29. 4. 2016 Rogatec (SI/HR), last amendment concluded on 29. 4. 2016
IA	4.1	Network Users informed about IA impact	Y	N	All three interconnection agreements were concluded before NCINT entered into force, thus network users were not directly involved in the preparing of interconnection agreements.
IA	4.2	IA concluded after application date of the Code	N	Y - In May 2017 draft amendment of existing interconnection agreement between SI TSO and IT TSO was published on SI TSO web site. Network users were invited to submit their comments.	http://www.plinovodi.si/en/2017/04/news/amending-the-interconnection-agreement-at-goriziasempeter-interconnection-point/
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N - Since Slovenia does not have national gas production, no gas storages and also no LNG terminal, therefore only IPs are subject of concern about gas quality. TSO has coordinated and synchronised with all its adjacent TSOs gas quality specifications at IPs (it is part of Interconnection Agreement) and therefore there are no restriction due to gas quality.	Information about this can be found on following links: - http://www.plinovodi.si/en/for-users/network-information/ - http://www.plinovodi.si/en/company/legislative-framework/ - http://www.plinovodi.si/za-uporabnike/metodologija-za-dolocitev-povprečne-dnevne-kurilnosti-za-notranje-izstopne-točke-iz-prenosnega-sistema/
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	Data on daily average of gross calorific value is published on http://www.plinovodi.si/en/for-users/network-information/ Hourly data on gross calorific value and Wobbe index are published on ENTSOG Transparency Platform. Link in provided on the TSO website http://www.plinovodi.si/en/for-users/network-information/ Publishing of daily average value of Wobbe index on TSO web site is in the process and will be realized soon.
GQ	19	cross-border restrictions due to odourisation	N	N	TSO has coordinated and synchronized odourisation specifications with all their adjacent TSOs in the process of concluding Interconnection Agreement. Since there is not odourised gas in transmission system there is no cross-border trade restrictions. Information about gas odourisation in transmission system is specified in Network Code for natural gas transmission system and published on page: http://www.plinovodi.si/en/company/legislative-framework/ .
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	Y	TSO for the time being offers to their network users two available data exchange solutions: - Interactive solution as defined in Article 21, 1, (c); - Solution with e-mail in order to support still very commonly used past solution by network users. TSO is also in the final stage to complete AS4/Edig@s solution and make it available for network users. Approval about the use of other data exchange solution is in process. Link where information are published are: - http://www.plinovodi.si/en/for-users/nus_portal/ - http://www.plinovodi.si/en/for-users/nomination-procedures/
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N	The CNOT is in preparation phase and will be applied on 1 Nov 2017.

3.18 SK – Slovakia

Topic	Article	Feature	ENTSOG	NRA	Evidence
		TSO	eustream		
		EIC/Identifier for TSO	21X-SK-A-A0A0A-N		
IA	3	IA in place	Y	Y	IP Baumgarten - 10.2.2009 IP Velke Zlievce - Balassagyarmat - 27.2.2015 IP Lanžhot - 1.7.2016
IA	4.1	Network Users informed about IA impact	Y	Y	http://www.eustream.sk/en_transmission-system/en_other-information/en_2015703-requirements
IA	4.2	IA concluded after application date of the Code	N	Y	http://www.eustream.sk/en_transmission-system/en_other-information/en_2015703-requirements
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N - No restrictions have not been recognized at any IP	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y	Y	https://tis.eustream.sk/TisWeb/#/?nav=bd.gcwwi
GQ	19	cross-border restrictions due to odourisation	N	N - Eustream as well as all adjacent TOSs use non- odourised gas in their networks Y - after consultation with NU, approved by NRA, excel sheet as data format AS2 to as data exchange protocol e-mail as data exchange tool	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey		No Evidence
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	Y - AS4 will be implemented in Q2/2017	No evidence

3.19 UK – United Kingdom

Topic	Article	Feature	ENTSOG	NRA	Evidence
TSO			National Grid, Premier Transmission Ltd. and GNI (UK)		
EIC/Identifier for TSO			21X-GB-A-A0A0A-7; 21X0000000013562; 21X-GB-C-A0A0A-QGNI (UK)		
IA	3	IA in place	Y	Y	(1)BBL-NGG agreement concluded on 01/10/2015 (2)NGG-IUK agreement concluded on 01/05/2016 (3)NGG-GNI agreement made concluded on 01/10/2015.
IA	4.1	Network Users informed about IA impact	Y	Y	(1)BactonBBL consultation launched on 02/07/2015 https://www.bblcompany.com/news/consultation-on-the-changes-to-the-bblc-ngg-interconnection-agree (2)Bacton IUK consultation launched on 30/07/2015 http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=43436 (3)Moffat : the IP is exit only, therefore compliance falls on Ireland.
IA	4.2	IA concluded after application date of the Code	Y	Y - No IA was concluded after the entry into force of the Code	N.A.
GQ	15	cross-border restrictions due to Gas Quality (GQ)	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
GQ	16	Are Wobbe Index and Gross Calorific Value published for each entry point and once per hour?	Y/N.A	Y/N.A (Moffat)	(1) Bacton BBL https://www.bblcompany.com/news/consultation-on-the-changes-to-the-bblc-ngg-interconnection-agree (2) Bacton IUK http://www.interconnector.com/media/100004/ia_consultation_media_release.pdf (3) Moffat - http://www2.nationalgrid.com/UK/Industry-information/Europe/Consultations/
GQ	19	cross-border restrictions due to odourisation	N	N	No assessment of potential problems in association with gas quality has been conducted in the context of the implementation of the Code.
DE	21	Use of data exchange solutions alternative to Article 21 for data exchange requirements foreseen by point 2.2 of Annex I to Regulation (EC) No 715/2009, NC CAM, NC BAL, NC, REMIT and NC INT. (Y/N)	Not covered by ENTSOG survey	N	(1) Bacton BBL https://www.bblcompany.com/transparency/ (2) Bacton IUK http://www.interconnector.com/transparency/transparency-information/ (3) Moffat - http://www2.nationalgrid.com/UK/Industry-information/Europe/Transparency-Requirements/
DE	24	The CNOT as developed by ENTSOG is applied.	Not covered by ENTSOG survey	N - CNOT is not the primary tool used but National Grid do give the option for network users to use the CNOT for all processes apart from surrenders as these do not currently occur on the GB network	No Evidence

Annex 1: List of abbreviations and country codes

Table 7: List of abbreviations

Acronym	Definition
ACER	Agency for the Cooperation of Energy Regulators
ENTSOG	European Network of Transmission System Operators for Gas
IA	Interconnection Agreement
NRA	National Regulatory Authority
NU	Network User
TSO	Transmission System Operator
EC	European Commission
EU	European Union
GCV	Gross Calorific Value
GQ	Gas Quality
MS	Member State
BAL NC	Balancing Network Code
IP	Interconnection Point
WDO(s)	Within-day Obligation(s)
MAM	Market Area Manager
DM / NDM	Daily metered / Non-daily metered

Source: ACER

Table 8: Country codes

Acronym	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Grand Duchy of Luxemburg
LV	Latvia
NL	The Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK-GB	Great Britain
UK-NI	Northern Ireland

Annex 2: Interconnection agreements – legal basis, analytical methodology and conclusions

a) Legal basis

- (107) The Framework Guidelines resulted, with regard to IAs, in the following legal requirements in the Code:
- (108) **Recital 3** provides that *“The lack of harmonisation in technical, operational and communication areas could create barriers to the free flow of gas in the Union, thus hampering market integration. Union interoperability and data exchange rules should allow the necessary harmonisation in those areas, therefore leading to effective market integration. For that purpose and for facilitating commercial and operational cooperation between adjacent transmission system operators, this Regulation should address interconnection agreements, units, gas quality, odourisation and data exchange. It should provide rules and procedures to reach an appropriate level of harmonisation towards efficient gas trading and transport across gas transmission systems in the Union.”*
- (109) **Chapter II of the Code** is dedicated to IAs. Articles 3 and 5 in this chapter provide an overview of the structure and content expected in IAs, which is further developed related to default issues in Articles 6 to 10. Articles 11 and 12 detail the management of concluded IAs. Article 4 defines expected transparency over the IAs concluded. **Table 9** further details the requirements set in Article 6 to 12.

Table 9: Overview of the requirements set by the Code on the content of IAs

Article	Title	Content overview
6	Rules for flow control	Specifies which are the obligations and responsibilities to be clarified in an IA in order to "facilitate a controllable, accurate, predictable and efficient gas flow"
7	Measurement principles for gas quantity and quality	Sets principles to be agreed on, and obligations regarding measurement installations, responsibilities when failing to meet those principles and obligations.
8	Rules for the matching process	Sets expectations regarding the matching rules, nomination and renomination cycles, data exchange provisions
9	Rules for the allocation of gas quantities	Sets the principle that allocations should be consistent across an IP; suggests the use of an Operational Balancing Account (OBA) as a default mean to ensure this consistency, as well as specific obligations related to the use of this OBA.
10	Communication procedures in case of exceptional events	Sets information obligations, both in terms of content and occasions
11	Settlement of disputes arising from Interconnection Agreements	Sets the framework to resolve disputes, both in terms of process and jurisdictions involved
12	Amendment Process	Requests a detailed amendment process; suggest the use of the dispute settlement process in case the amendment process fails.

- (110) Pursuant to Article 5 of the Code, ENTSOG published on 16 December 2015 an IA Template⁴⁷. The Template covers the default terms and conditions for the minimum mandatory content of an IA. It is to be used in situations when TSOs fail to agree on one or more of the mandatory terms.

b) Analytical methodology

- (111) In the following Sections, we introduce the principles driving the quantitative and qualitative analysis. The quantitative approach is based on a self-assessment performed by TSOs. The qualitative approach is based on the assessment by the Agency of a selection of IAs. Both assessments evaluate the extent to which IAs tackle issues listed in Article 3 of the Code. The qualitative analysis further evaluates the implementation of specific requirements related to those issues and listed in Articles 6 to 12 of the Code.

c) Quantitative analysis: principles

- (112) This Section is based on the information collected by ENTSOG. Following the obligation set in Article 25(1) of the Code, ENTSOG communicated to the Agency the results of the self-assessment performed by the TSOs on their implementation of the Code, including Chapter II of the Code, by 30 September 2016. These self-assessments, including the answers relating to Chapter II of the Code, were submitted to NRAs' scrutiny until January 2017. Subsequently, the Agency sent a questionnaire to the NRAs with the request to assess the compliance of their TSOs' IAs' with the Code.
- (113) The information collected by ENTSOG covers 90 IPs, which correspond to those where the Network Code on Capacity Allocation Mechanism ("CAM NC") apply⁴⁸. This information consisted in answers to a series of closed questions closely related to the terms of the Code⁴⁹. Answers were not

⁴⁷http://www.entsog.eu/public/uploads/files/publications/INT%20Network%20Code/2015/INT0647_151216%20Interconnection%20Agreement%20template.pdf.

⁴⁸ Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0459&from=EN>.

49 See Annex 7: Case Study – Approach to Data Exchange in Germany

- (1) The German market is the largest in terms of gas demand (866 TWh in 2015). In 2015 – 2016, there were 16 TSOs active in two Entry/Exit zones (Gaspool and Net Connect Germany). The geography of the German network is such that there are in general several physical routes from a hub from one of the eight neighbouring Member States, to a German one. In several cases, these physical routes are owned by different TSOs. In addition, certain physical points belong to more than one TSO.
- (2) The issue of communication in general, and data exchange in particular, is particularly relevant because of the size and the central position of the German market in the EU, as well as the number of TSOs present in this market.
- (3) The German TSOs within the FNB Gas initiated a consultation process on data exchange which ran from 18 December to 22 January 2016. BNetzA based its approach to data exchange, in its decision BK7-16-042 of 26 April 2016 on the outcome of this consultation.
- (4) According to BNetzA, i) the vast majority of the respondents to the TSO consultation stated they are not able to implement the data exchange solutions AS4/Edig@s-XML by 01.05.2016, and ii)

supported by any evidence (like links provided, simple cross-checks of titles, provisions). They were based on a self-evaluation. They did not follow a standard evaluation methodology. For this reason, the Agency developed an additional questionnaire of core issues related to the Code, including those in Chapter II. NRAs and TSOs were asked to jointly answer the questionnaire, and requested to provide evidence⁵⁰ that proves that a requirement in the Code is fulfilled.

d) Qualitative analysis: principles

- (114) The quantitative analysis consisted in assessing IAs against the provisions of the Code, as well as against the IA examples provided by ENTSOG⁵¹. To complement this, the Agency performed a qualitative analysis of a sample of those IAs which were concluded after the date of application of the Code.
- (115) On the basis of the provisions in the Code, the Agency is not in a position directly and systematically to collect all IAs due to the lack of powers to collect these documents. IAs assessed for the current monitoring exercise were communicated by ENTSOG with the consent of NRAs on a voluntary basis.
- (116) Following Article 4 of the Code, TSOs must communicate to ENTSOG and relevant NRAs *‘[t]he mandatory terms of interconnection agreements listed in Article 3 or any amendments thereof’* for IAs amended or concluded following the entry into force of the Code (20 May 2015). The Agency selected a sample of IAs roughly covering a gas route from east to west (a dominant route in the EU) and requested the concerned TSOs to provide the corresponding IAs.

Figure 2: IAs requested by the Agency for the current monitoring exercise⁵² (2017)

the data format (“EDIFACT”) as well as the data protocol (“AS2”) in use meet the requirements of the network Code interoperability.

- (5) Following BNetzA’s decision, the approval to use the data format “EDIFACT” and the data protocol “AS2” for the communication between the TSOs and their counterparties is limited until 31 January 2018. Past that date, AS4/Edig@s-XML, as recommended by ENTSOG, becomes the only standard.
- (6) Taking into account the legal interpretation at the origin of the decision, the Agency observes that the approach is pragmatic. It goes beyond the minimum requirements set in the Code as it sets an implicit obligation on all stakeholders to use AS4/Edig@s-XML by 1 January 2018. The costs faced by Network Users as a consequence of this obligation have not been estimated as part of a cost-benefit analysis.

Annex 8.

⁵⁰ See Part III - Countries Assessment.

⁵¹ https://www.entsog.eu/public/uploads/files/publications/INT%20Network%20Code/2015/INT0647_151216%20interconnection%20Agreement%20template.pdf.

⁵² For complete references, see Annex 3.



Source: ACER

- (117) The exercise consisted in assessing the IAs against the mandatory provisions set in Articles 6 to 12, respectively on the topics of flow control rules, measurement principles for gas quality and quantity, rules for the matching process, the allocation of gas quantities, communication procedures in case of exceptional events, settlement of disputes arising from IAs and the amendment process.
- (118) The assessment consisted of verifying that the abovementioned topics were addressed in the IA, to a sufficient level of detail⁵³.

e) Quantitative analysis: observations

- (119) The section of the self-assessment dedicated to IAs consisted of 8 questions covering the terms of Article 3.
- (120) As shown in Table 10, six IPs, involving TSOs from Belgium, Bulgaria, France, Germany, Hungary, and Romania are not covered by an agreement.
- (121) In addition, as shown in Table 11, German TSOs reported that at seven IPs, IAs are incomplete, either because certain requirements of the Code are not applicable⁵⁴, or because they are in the process of being implemented.

Table 10: IPs without IAs in the EU (2016)

⁵³ In general, the level of detail was deemed sufficient when requirements set by the Code were explicit in the IAs. Assessment criteria are detailed per Code provision in Annex 5.

⁵⁴ These statements were not substantiated in ENTSOG's 2016 data collection exercise.

IP code	TSOs	Member State
21Z000000000160X	Bulgartransgaz	BG
21Z000000000154S	FGSZ	HU
21Z000000000011D	Fluxys Belgium,GRTgaz	BE,FR
37Z000000001442N	GASCADE Gastransport,terranets bw	DE
21Z0000000003022	Transgaz	RO
21Z0000000003030	Transgaz	RO

Source: *ENTSOG*

Table 11: IPs with incomplete IAs (2016)

IP NAME/ LOCATION	EIC or identifier for IP	TSO1	TSO2	3. b. Measuremen t principles for gas quantities	3.b Measuremen t principles for gas quality	3.f. Settlemen t of disputes	3.g. Amendmen t process
Bocholtz	21Z000000000071 W	Open Grid Europe				In progress	In progress
Oude Statenzijl	21Z000000000075 O	Open Grid Europe				In progress	In progress
Tegelen	21Z000000000117 Y	Open Grid Europe				In progress	In progress
Bocholtz	21Z000000000204 2	Fluxys TENP				In progress	In progress
Steinitz	21Z000000000237 O	ONTRAS	Open Grid Europe	Not applicable	Not applicable		
Lamperthei ml	37Z000000000790 5	GASCADE Gastranspor t	Open Grid Europe			Not applicable	Not applicable
Reckrod l	37Z000000004923 T	Open Grid Europe	GASCADE Gastranspor t			Not applicable	Not applicable

Source: *ENTSOG*

- (122) On the basis of the information collected by the Agency from NRAs⁵⁵, most NRAs do not proactively assess the compliance of IAs against the requirements set in the Code. This is regardless of whether IAs were concluded before (25% of IAs assessed) or after (50%) the entry into force of the Code.

f) Qualitative analysis: observations⁵⁶

- (123) This Section first provides general observations, per topic and per border. It then focuses on issues of annexes and templates published by ENTSOG. Table 12 presents the assessment of each IA. Apart from the IA concluded between Bulgaria and Romania⁵⁷, all IAs show levels of compliance of 85% or beyond.

⁵⁵ See Annex 4.

⁵⁶ For the detailed assessment of the IAs, see Annex 5.

⁵⁷ Involved TSOs report difficulties to implement the Code fully, and in particular provisions regarding gas flow control and matching process at the Negru Voda 1 IP due to specific interactions with Ukrtransgaz and Gazprom Export. Future monitoring reports will further investigate the issue.

Table 12: outcome of the qualitative analysis of IAs per IP

	Score	Main issues
Austria - Italy	94%	
Belgium - Germany	100%	
Bulgaria - Greece	89%	Flow control, measurement and matching rules
Bulgaria - Romania	55%	Flow control and measurement rules
Croatia - Hungary	87%	Flow control and allocation rules
Germany - France	100%	
Hungary - Romania	94%	
Spain - Portugal	100%	

Source: ACER

Note: The score reflects the number of provisions, which were assessed positively over the total number of provisions evaluated. For a detailed evaluation of the provisions, see Annex 5

- (124) Table 13 assesses the implementation of the various topics across IAs. It confirms the overall proper implementation. More specifically, however, flow control and allocation rules are sometimes problematic, respectively due to the absence of provisions on the handling of Gas Quality and Odourisation issues, or the absence of criteria set on Operational Balancing Accounts ('OBAs').

Table 13: Outcome of the qualitative analysis of IAs per topic

	Score	Main issue
<u>General Requirements</u> The IA is in place and at least mentions all required topics	100%	
<u>Flow control</u> The IA mentions Rules, responsible parties and applicable safety legislation.	82%	Absence of specific approach to gas quality or odourisation (Art. 6(3)d)
<u>Measurement</u> The IA mentions Rules, responsible parties and technical details to the required level	86%	Lack of details regarding the measurement principles (Art. 7(1)a and 7(3)d)
<u>Matching</u> The IA mentions rules, responsible parties, and required technical details.	94%	No explicit mention that the matching process takes less than 2 hours (Art.8(2)d)
<u>Allocation</u> The IA mentions rules, responsible parties, and required technical details.	83%	No explicit mention of the requirements set in Article 9(3)c in case of an OBA
<u>Communication (exceptional events)</u> The IA mentions the detailed procedure	100%	
<u>Dispute settlement</u> The IA mentions the detailed procedure	100%	
<u>Amendment</u> The IA mentions the process and the jurisdiction	100%	

Source: ACER

Note: The score reflects the number of provisions which were assessed positively over the total number of provisions evaluated. For a detailed evaluation of the provisions, see Annex 5.

Annexes

- (125) Some of the IAs are missing Annexes. The IAs are legally binding contracts concluded between TSOs situated on different sides of the IP. The contracts can only be deemed complete, provided the Annexes/Operating Manuals are physically attached to them, as these additional documents contain critical information to assess compliance with the NC's provisions. Strictly speaking, the IA which does not contain its Annexes attached, cannot be deemed a valid IA under Article 3 of the Code.

Evaluation of ENTSOG IA templates

- (126) Before the entry into force of the Code, ENTSOG voluntarily published an IA template, based on best practices at that time⁵⁸. The Agency recommends that ENTSOG replaces this template with examples of IAs published after the entry into force of the Code, and fully reflecting the requirements of the Code on the sections relating to flow control, measurement principles, matching and allocation. The Agency suggests to use the IA signed between Spain and Portugal as a good example in terms of structure and readability.

⁵⁸ See 51 above.

Annex 3: List of IAs requested by the Agency for the qualitative analysis

Table 14: Detailed list of IAs requested by ACER to ENTSOG

Border	IP name	IP identifier	TSO
AT-IT	Tarvisio (IT) Arnoldstein (AT)	21Z000000000004A	TransAustria Gasleitung/ SNAM Rete Gas
BE-DE	Eynatten 2 (BE) // Lichtenbusch / Raeren (DE)	21Z0000000000163	Fluxys TENP/Fluxys BE
BG-EL	Kulata (BG) / Sidirokastron (EL)	21Z000000000020C	Bulgartransgaz/DESFA
BG-RO	Negru Voda I (RO) / Kardam (BG)	21Z0000000000159I	Bulgartransgaz/Transgas
DE-FR	Obergailbach (FR) / Medelsheim (DE)	21Z000000000039S	GRTgaz/GRTgaz Deutschland
ES-PT	VIP Iberico	21Z0000000000282J	REN-Gasodutos
HR-HU	Dravaszerdahely	21Z0000000000249H	FGSZ/Plinacro
HU-RO	Csanadpalota	21Z0000000000236Q	Transgaz/FGSZ

Source: ACER

Annex 4: Survey on the assessment of IAs performed by the NRAs

NRA	Please report any problem encountered when implementing the Code.	Are all interconnection points (within the national network and across borders) covered by interconnection agreements?	Did you collect interconnection agreements signed or amended before 20 May 2015?	Did you assess the compliance of those collected interconnection agreements against the provisions of the Interoperability Network Code?	Are you in possession of interconnection agreements signed or amended after 20 May 2015?	Did you assess the compliance of those collected interconnection agreements against the provisions of the Interoperability Network Code?
CNMC (ES)		Yes	No		Yes	Yes
E-Control (AT)	No problem	Yes	Yes	Yes	Yes	Yes
BNetzA (DE)	Compliance checks of IAs are performed on the basis of certain occasions. The latter did not occur so far.	Yes	No	No	Yes	No
MEKH (HU)	No problems.	Yes	No	No	No	No
AEEGSI (IT)	1) Inadequacy of the system to report hourly information. This was due to the fact that system were thought mainly for operational issues, therefore there were no applications to collect, harmonize and validate figures. 2) co-ordination with the interconnected users	Yes	No	No	No	No
ERU (CZ)	No problem	Yes	No	No	No	No
ILR (LU)	derogation for Luxembourg - answer on a voluntary basis	Yes	Yes	No	Yes	No
CRE (FR)	-	Yes	Yes	No	Yes	Yes
URE (PL)	No problem	Yes	Yes	Yes	Yes	Yes
CREG (BE)	No problem	No	No	No	Yes	Yes
OFGEM (UK)	No problem. derogation granted for Moffat IP (Article 13(3))	Yes	Yes	Yes	Yes	Yes
HERA (HK)		Yes	No	No	Yes	Yes
Total		92%	42%	25%	75%	50%

Annex 5: Detailed assessment of the IAs

Question	Assessment criteria	Austria - Italy	Belgium - Germany	Bulgaria - Greece	Bulgaria – Romania ⁵⁹	Croatia - Hungary	Germany - France	Hungary - Romania	Spain - Portugal
Is there an IA in place?	ACER is provided with a copy	Yes	Yes	Yes ⁶⁰	Yes	Yes	Yes	Yes	Yes
Are the elements contained by Articles 6 to 12 present in the Interconnection Agreement?	contains rules for flow control, measurement, matching, allocation of gas quantities, communication in case of exceptional events, settlement of disputes amendment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are there rules in place in order to facilitate a controllable, accurate, predictable and efficient gas flow? [Art.6(1)a]	closer look at the section on flow control identify that the general 1.a rule is mentioned	Yes	Yes - Art. 2	Yes - 5.9	No ⁶¹	No ⁶²	Yes ⁶³⁻	Yes - Art. 4.4	Yes
Are there rules in place for steering the gas flow across the interconnection point and for minimising the deviations from the flow pursuant to the matching process? [Art.6(1)b]	closer look at the section on flow control identify that the general 1.b rule is mentioned	Yes	Yes - Appendix F2.3	Yes ⁶⁴	No - Not given	Yes - 6.3. ⁶⁵	Yes ⁶⁶	Yes - Art. 4.4	Yes
Is the TSO responsible for steering the gas flow across an IP designated? [Art.6(1)c]	closer look at the section on flow control clear identification of a designated TSO and only one - default rule, TSO operating the equipment	No ⁶⁷	Yes - Appendix F2.2	Yes - Art. 5.9.2	Yes - Art. 6	Yes - 4.1. ⁶⁸	Yes - Art. 3.1	Yes (FGSZ) - Art. 4.1	Yes
Is the quantity and direction of the gas flow decided upon an hourly basis by the adjacent TSO? [Art. 6(2)]	closer look at the section on flow control exact mention that TSOs decide the quantity and direction hourly	Yes	Yes - appendix F2.4	No ⁶⁹ -	No - Not given	No - No mention ⁷⁰	Yes - Art. 3.3	Yes - Art. 4.4	Yes

⁵⁹ The TSOs observe that for the Interconnection Agreement for the Negru Voda 1 IP it was not possible the complete application of Regulation (EU) 703/2015 since:

- The Negru Voda 1 IP is an exit point from the Isaccea 1 – Negru Voda 1 transmission pipeline, dedicated to the supplying of Russian gas to Bulgaria;
- The Isaccea 1 – Negru Voda 1 pipeline is not interconnected with the Romanian national transmission system and has no compressor stations on the Romanian territory;
- Gas flow is dispatched by Gazprom Export, the only gas supplier for this pipeline;
- The level of pressure in the Isaccea 1 – Negru Voda 1 pipeline is ensured by Ukrtransgaz (the Ukraine transmission operator) having an interconnection agreement concluded for the Isaccea 1 – Orlovka IP with Transgaz;
- Ukrtransgaz does not receive information from Gazprom Export enabling the matching of the nominations and the allocation of the gas quantities transmitted;
- The transmission capacity for this pipeline made the object of a long-term contract, which expired on 30.09.2016. This contract did not allow the granting of third parties access to the pipeline transmission capacity.

Therefore, the Interconnection Agreement concluded for the Negru Voda 1 – Kardam IP had to consider that the provisions of Regulation (EU) 703/2015 cannot be totally applied, especially those regarding the gas flow control and the matching process.

We underline that the conclusion of the agreements for the Isaccea – Negru Voda pipeline enabled third party access to the relevant transmission capacities starting with 1.10.2016, according to Regulation CAM NC.

The transmission operators involved made all endeavours to conclude the agreements, with the direct support of the European Commission (DG ENER).

⁶⁰ The copy provided to ACER is obsolete since 1 February 2017. The validity of this copy was extended until 31.05.2017. The second version of the IA between DESFA and BTG is effected as of 01.06.2017 (relevant copy has been forwarded to ENTSO by DESFA).

⁶¹ - provisions for flow control (Art.4) are Not sufficient to ensure a controllable, efficient, stabilized flow.

⁶² - provisions for flow control (Art.4) are Not sufficient to ensure a controllable, efficient, stabilized flow.

⁶³ Provisions for Flow Control are described in the existing contract, not the amendment; stated Article 3 "flow control" of "Medelsheim Interconnection Agreement" (signed before 21st May 2015).

⁶⁴ - par. 4.6.1 (TBP close to zero), par. 5.9.2 (minimize the steering difference), par. 6.1 (round the clock communication between the Dispatching centres in order to optimize the flow through the IP).

⁶⁵ After renomination the Dispatching Centres of the 2 TSO match the delivery task, the appointed TSO sets the control system accordingly and try to keep the OBA value close to 0 also.

⁶⁶ - Provisions for Flow Control are described in the existing contract, not the amendment; stated Article 3 "flow control" of "Medelsheim Interconnection Agreement" (signed before 21st May 2015).

⁶⁷ -both TSOs designated - see SP-PT as example for clear identification, see 7.1.b

⁶⁸ The Operator of the relevant measuring station determined in accordance with Article 5 of this IA shall carry out gas flow control to ensure that the balance of the sum of all confirmed nominations and the total measured gas quantity is at every moment as close to zero as possible. From TSOs, currently FGSZ is responsible for flow control, as gas flow is from Hungary to Croatia.

⁶⁹ Not applicable at the moment, as Neither Hourly renominations nor physical reverse flow were implemented until 01.06.2017, when this version (first) of the IA between DESFA and BTG was applied. However, round the clock communication between the Dispatching centers, in order to optimize the flow is foreseen.

⁷⁰ From the TSOs, there is no flow change by hours, only daily. If it is needed TSOs use OBA within day. The matching process and setting of the control system are hourly basis.

Question	Assessment criteria	Austria - Italy	Belgium - Germany	Bulgaria - Greece	Bulgaria – Romania ⁵⁹	Croatia - Hungary	Germany - France	Hungary - Romania	Spain - Portugal
Does the quantity and direction of the gas flow decided by the adjacent TSO reflect the result of the matching process? [Art.6(3)a]	closer look at the section on flow control explicitly mention that the quantity and direction of the gas flow reflect the result of the matching process	Yes ⁷¹	Yes - appendix F2.4	Yes - refer to Art. 4.6.1, 5.9.2 and 6.1	No - Not given	Yes - Art. 4.2	Yes ⁷² -	Yes - Art. 4.2	Yes
Does the quantity and direction of the gas flow decided by the adjacent TSO reflect the operational balancing account correction? [Art.6(3)b]	closer look at the section on flow control - explicitly mention that the quantity and direction of the gas flow reflect the operational balancing account correction	Yes ⁷³	Yes - appendix F2.4	Yes - refer to Art. 4.6.1, 5.9.2 and 6.1	No - Not given	Yes ⁷⁴	Yes - Art. 3.3	Yes - Art. 4.1 and 4.4	Yes
Does the quantity and direction of the gas flow decided by the adjacent TSO reflect any efficient flow control arrangements? [Art.6(3)c]	closer look at the section on flow control explicit mention that the quantity and direction of the gas flow decided by the adjacent TSO reflect efficient flow control arrangements	Yes - 8.4 ⁷⁵	Yes - appendix F2.4	Yes - Art. 5.9.2	No - Not given	Yes - Art. 4.1	Yes - Art. 3.2	Yes - Art. 4.4	Yes
Does the quantity and direction of the gas flow decided by the adjacent TSO reflect any arrangement managing cross-border trade restrictions due to gas quality pursuant to Article 15? [Art.6(3)d.1]/Does the quantity and direction of the gas flow decided by the adjacent TSO reflect any arrangement managing cross-border trade restrictions due to odourisation practices pursuant to Article 19? [Art.6(3)d.2]	closer look at the section on flow control explicit mentions	Not Applicable. These provisions of the Regulation apply only in case the conditions of Art. 15 and/or 19 are met. Currently they are not. No need of any reference in the IPA.	YEs - Appendix F2.4. The Parties shall decide on the quantity of the gas flow for each hour of the gas day (scheduled flow). The scheduled flow shall reflect: • the result of the matching process; • the OBA correction; • any efficient flow control arrangements agreed between the parties (including Swaps); • any arrangement managing cross-border trade restrictions due to gas quality differences and/or odourisation practices.	Not Applicable. NG quality does not restrict cross border trade. No odourisation requirements are in place.	No - No explicitly mention - see SP-PT as example (odourisation)	Yes - annex 5. In Hungary at the cross border point the transmitted gas is not odourised. The quality parameters of gas is in Annex 5	Yes, Appendix 2 No 8 "Exchange of metering data" of the amendment N°1; initial contract contains Art 7 Gas Quality (signed before 21st May 2015)	No- No explicitly mention - see SP-PT as example (odourisation)	Yes - Partial - odourisation - see Art. 8.5. ⁷⁶
Does the IP comply with the national safety legislation/EU safety legislation? [Art.6 (4)a]/Compliance with the requirements laid down in Emergency Plans? Compliance with requirements laid down in Preventive Plans? [Art.6.4(b,c)]	closer look at the section on flow control explicit mentions	Yes - explicit mention	Yes - appendix F2.8	No explicit mention ⁷⁷ .	No	Partial - Not applicable (TSO did Not alter the direction and quantity of gas flow)	Partial - Not applicable (TSO did Not alter the direction and quantity of gas flow)	Partial - Not applicable (TSO did Not alter the direction and quantity of gas flow)	Partial - Not applicable (TSO did Not alter the direction and quantity of gas flow)

⁷¹ - 8.4 The TSOs agree to steer the flow as close as possible to the Allocated Quantity according to Art. 8.4 of the IA stating "For this purpose, SRG and TAG shall ensure that on a daily basis the total quantities of Natural Gas actually transported at the IP are as close as possible to the Allocated Quantity". The Allocated Quantity, as indicated in the IA definitions, results from the matching process.

⁷² Article 4.1 and 4.2 and Description in Appendix 1 (1.6) of the "Amendment No1" Reference to intraday flow reversion (see last sentence).

⁷³ -8.4 The TSOs agree to steer the flow in order to minimize the operational balancing account (i.e. to correct any difference in the account). IA Art. 8.4. "Furthermore TAGG and SRG shall make their best efforts to control the Gas Flow in order to ensure that both the Daily Unbalance Quantity and the Operational Balancing Account shall be as close as possible to zero".

⁷⁴ - The OBA values for day by day can be found in Annex 4 (separately HU>HR and HR>HU). There is no gas delivery below the quantity minimum (4.2.: 40,000 m3/h (n)), in this case there is periodical delivery or the Operators ensure the quantity by OBA.

⁷⁵ The principle of efficiency is explicitly mentioned in the IA. IA Art. 8.4. "The Parties agree to steer the flow at a level of stability in line with the efficient use of the gas transmission networks." All the measures in Art. 8.4 follow this principle (e.g. "the total quantities of Natural Gas actually transported at the IP are as close as possible to the Allocated Quantity", "the Parties shall coordinate their activities in order to optimise the hourly profile").

⁷⁶ No explicit mention to specific arrangements for the management of cross-border trade restrictions due to gas quality is included in the interconnection agreement, as it is assumed a priori that there is no cross-border trade restriction to be managed. Nevertheless, the obligation to deliver gas within specifications (this including odourisation) are stated in clauses "9.2 Gas Quality" and "9.3 Odourisation" (page #36). Parties would be liable in accordance with clause "1.11.2 Liability among Parties" (page #14).

⁷⁷ Reverse flow is feasible and it is foreseen in the second version of the IA currently in force. No special provisions concerning the operation of the IP are included in the Greek PAP and EP.

Question	Assessment criteria	Austria - Italy	Belgium - Germany	Bulgaria - Greece	Bulgaria – Romania ⁵⁹	Croatia - Hungary	Germany - France	Hungary - Romania	Spain - Portugal
Are the details of the measurement principles in place for volume, energy and gas quality? [Art.7(1)a]	closer look at the section on measurement principles detailed mention. As a principle, absence of mention or absence of details is assessed negatively	Yes - 8.2 ⁷⁸	Yes - Appendix E (metering handbook provided to us).	partial ⁷⁹	No. Technical Operating Manual Not provided (Annex 7).	Yes - The details can be found in Operational Manual in Annex 7 in case of FGSZ measuring station, and in Annex 8 in Plinacro measuring station.	Yes - Appendix 2 of amendment	Yes - Annex 7	Yes - Annex 7 Not provided
Is the TSO responsible for the installation, operation and maintenance of the measurement equipment identified? [Art.7(1)b]	closer look at the section on measurement principles clear identification of a designated TSO and only one	Yes - TSO clearly identified	Yes (Fluxys) - Art. 4.1	Yes - Art. 5.3	Yes (Transgaz) - Art. 6	Yes - Art. 5.1.2; Art. 5.2.2	Yes - Appendix 2 of amendment	Yes - FGSZ, Art. 5	Yes
Did this TSO inform the adjacent TSO upon data and information regarding measurement of gas flow? [Art.7(1)b]	closer look at the section on measurement principles clear mention of a communication rule	Yes	Yes - Art. 4.13	Yes - Art. 5.4.1.1	No - Not given	Yes - Art. 5.1.2; Art. 5.2.3	Yes ⁸⁰	Yes, if calibration = measurement? Art. 5.1.2	Yes
Does the installation, operation and maintenance of the measurement equipment at an IP take into consideration the technical requirements imposed by the national regulations on the adjacent TSOs?	closer look at the section on measurement principles mentioning of the applicable law or standard	Yes	Yes - Art. 4.2	No ⁸¹	No - Not given	Yes - Art. 5.1.5; Art. 5.2.5	Yes - Appendix 2 Ziffer 6 Applicable standards	Yes, Hungarian legislation - Art. 5.15	Yes
Do the measurement principles include ...? [Art.7.3.a – Art.7.3.k] – see ENTSO table 5.1. Description of metering station? 5.2. Parameters, volume, energy 5.3. Calculation procedures 5.4. Maximum permissible error/uncertainty in energy transported? 5.5. Data validation 5.6. Verification and adjustment procedures 5.7. Data, frequency, content 5.8. List of signal and alarms 5.9. Corrections to measurements	closer look at the section on measurement principles "negative" assessment if points are not mentioned "partial" assessment if all points are mentioned but details missing (e.g. operating manual) "positive" assessment if all details available	Yes ⁸²	Yes. Appendix E.	Yes	No - Not given	Yes - Points 5.1. to 5.9 are all covered in sufficient details in Annex 7 (Operating manual of Drávaszerdahely metering station) and Annex 8 (Operating manual of Donji Miholjac metering station)	Yes - Appendix 2 of amendment	Yes - Points 5.1. to 5.9 are all covered in sufficient details in Annex 7 (Technical Operating Conditions of Csanádpalota metering station)	Yes
Are rules for the matching process in place? Do they take into account the daily hourly nomination arrangements, where relevant? 8.1	closer look at the section on matching detailed provisions for daily hourly nomination arrangements	Yes ⁸³	Yes - Appendix F1.5, F1.6 and F1.7	Yes - Art. 4.3.4.1; Art. 4.3.4.2	Yes - Art. 7.2 (b)	Yes - Art. 6.2.1	Yes - Appendix 1	Yes - Art. 6.1	Yes
Are rules governing the communication and processing of the relevant data for calculating the processed quantities and confirmed quantities in place? [Art.8(1)b]	closer look at the section on matching detailed provisions for when to communicate in which situation	Yes	Yes - appendix F1.7	Yes Art. 4.3.4.2	Yes - Art. 7.2	Yes - Art. 6.2. Annex 2B is missing.	Yes - Appendix 1	Yes - Art. 6.1	Yes
Which is the matching rule? If 'not', then have NUs been invited to comment on it?	closer look at the section on matching explicit mention of the matching rule	Yes	Lesser rule - appendix F1.8	Lesser rule - Art. 4.3.5	Lesser rule - Art. 7.2	Lesser rule - Art. 6.2.3	Lesser rule - Art. 1.3	Lesser rule - Art. 4.4	Lesser rule.
Did the TSOs specify their roles in the matching process? [Art.8.2(c)] which is the TSO responsible for the matching process? According to 8.5.b – it should be the TSO in control of the flow equipment.	closer look at the section on matching clear identification of a designated initiating TSO and matching TSO	Yes	Yes - appendix F1.3 and F1.4	Yes - Art. 4.3.1; Art. 4.3.2	Yes, Transgaz, matching TSO. In the Preamble of IA.	Yes - Art. 6.2.3	Yes - Art. 1.4	Yes ⁸⁴ -	Yes - Enagas matching; REN initiating.

⁷⁸ The detailed measurement principles have been established as stated in IA Art. 8.2. The parties have agreed and built the metering station according the standard ISO 17089-2010 measurement of fluid flow in closed conduits - Ultrasonic meters for gas.

⁷⁹ Article 5.4 but Annexes 4 & 5 are missing. The TSO understands that forwarding annexes referring to mandatory terms is not mandatory, referring to Art.4 par. 3 of Reg. 703/2015.

⁸⁰ - Appendix 2 No 8 Exchange of metering data 8.1 In addition OGE provides all metering data of Medelsheim to GRTgaz D and GRTgaz on their Energy data Porta.

⁸¹ Not given- The TSO understands that forwarding annexes referring to mandatory terms is not mandatory, referring to Art.4 par. 3 of Reg. 703/2015.

⁸² - 8.2 + operating manual - The verification and adjustment procedure (verifications, control and calibration) is set according to Art. 8.2 of the IA. The gas quality parameters as well as the volume and energy that shall be measured are listed in Art. 8.3 of the IA. Other requirements have been agreed by the parties in the Operating Manual which constitutes an integral part of the IA as Annex to the main text.

⁸³ However, No mention details of the hourly process. Assumed non relevant.

⁸⁴ The roles for the TSOs in the development of the matching process result from the description of the process in Art. 6.4.2, pg.13. Therefore TGZ is the Initiating System Operator (ISO) and FGSZ is the Matching System Operator (MSO) being also the TSO who controls the equipment related to the flow.

Question	Assessment criteria	Austria - Italy	Belgium - Germany	Bulgaria - Greece	Bulgaria – Romania ⁵⁹	Croatia - Hungary	Germany - France	Hungary - Romania	Spain - Portugal
Does the matching rule lead to the application of identical confirmed quantities at both sides of IP?	closer look at the section on matching assessment of the matching process - looking for explicit mentioning of process ending with identical confirmed quantities	Yes	Yes - appendix F1.8	Yes - Art. 4.3.4.1	Yes (by interpreting per a contrario Article 7.2 c)	Yes - Art. 6.2.2	Yes - Appendix 1, Art. 1	Yes - Art. 6.4.2.2	Yes.
Does the whole matching process take more than 2 hours from the starting of the re/nomination process? [Art.8.2(d)] - check according to 8.5.c	closer look at the section on matching explicit mention of the duration of the process explicit mention that this duration is below " hours from the starting of the nom/renomination cycle"	Yes ⁸⁵	Yes - ⁸⁶	No - Art. 4.3.7	No - Art. 7.2.d	No - Art. 6.3.1	Yes - Appendix 1 3.1 and in particular 3.2 Matching cycle sequence flow	Yes - According to Art. 6.5.1-6.5.3, pg. 14, the nominations matching process does not last longer than 2 hours	Yes ⁸⁷
Are rules for the matching process in place? Do they take into account the daily hourly nomination arrangements, where relevant? 8.1	closer look at the section on matching explicit mention that temporary reductions are taken into account	No ⁸⁸⁻	Yes - Appendix F1.5, F1.6 and F1.7	Yes - Art. 4.6.2. - ⁸⁹	Yes - Art. 7.2 (b)	Yes - Art. 6.2.1	Yes - Appendix 1	Yes - Art. 6.1	Yes
Is the use of data exchange and the harmonised information specified? 8.4.b	closer look at the section on matching - expectation: explicit mention of a harmonised approach regarding the seven points in the section related to matching.	Yes ⁹⁰	Yes - appendix F1.11	Yes - Art. 4.3.13	Yes - Art. 7.2.h	Yes - Data exchange is specified in Annex 7.6 and Annex 8.6	Yes - Appendix 1	Yes - Art. 6.4	Yes
Are rules for the allocation of gas quantities in place at both sides of the IP? In particular. (1) What is the allocation rule? OBA or other? [Art.9.2] (2) Is the TSO in control of the measurement equipment recalculating the OBA and communicating it to the adjacent TSOs? 9.2 (3) Are the allocations equal to the confirmed quantities? [Art.9.3.a] (4) If any, is the OBA maintained close to 0?	closer look at the section on allocated quantities expectation: explicit mention of the allocation rules with explicit approach to steering differences at IP, TSO in control, that the allocations equal confirmed quantities, where relevant, that the OBA is maintained close to 0	Yes ⁹¹	Yes - see Appendix G, OBA description in Art. 3 and 5	Yes ⁹² .	Yes - see Art. 8.1, OBA description in Art. 9	Yes ⁹³	Yes - see art4.7, OBA in Art. 4.2	Yes - see Art. 7.1, OBA in article 8	Yes - OBA

⁸⁵ Art. 3.2.2. of the IA contains an explicit requirement to send the confirmed quantities within two hours from the start of the process: "According to the procedure under paragraph 3.2.3 below "Matching of re-nomination", SRG and TAGG shall send the Confirmed Quantities to the respective Shippers/BGRs within two hours from the start of the re-nomination cycle."

⁸⁶ Appendix F1.2. refers to CBPs which foresee 120 Minute deadline for TSOs under par. 4.5 "Deadlines of a nomination and matching cycle" - https://eassee-gas.eu/download_file/DownloadFile/23/cbp-2014-001-01-harmonisation-of-the-nomination-and-matching-process-for-double-sided-and-single-sided-nomination.

⁸⁷ Annex 4 (Common Business Requirements Specification: Nomination and Matching Process for VIP Iberico) Point 6.2. Page 49 and 50; in any case, for each cycle both TSO's will endeavour their best efforts in order to have the cycle closed within one hour.

⁸⁸ No explicitly mention about temporary reductions. The matching is performed with the daily values for both side of the Interconnection Point. Art. 3.2.3 of the IA sets the rules for the matching process: "The Parties agree that an activity of matching shall be performed in order to check the correspondence between the daily quantities nominated by each TAGG BGR/SRG Shipper, based on the Shipper Code Pair."

⁸⁹ Rules for matching process are in place. Capacity limitations are taken into consideration for the calculation of the gas flow - refer to Art. 4.6.2.

⁹⁰ - Art. 9 of the IA sets the rules for communication between the TSOs. "The Parties agree to adopt Interoperability Network Code compliant communication solution(s) with respect to the communications falling into the scope of this IA". A detailed description of the information exchanged for the matching process is included in Annex 2 and 2A of the IA.

⁹¹ The allocation rule is set in Art. 2 of the IA. "The IA also sets out primarily the terms and conditions for the application at the IP of the Allocation = Nomination Principle as well as the rules for the management of the Daily Unbalance Quantity and Operational Balancing Account between the Parties".

The following definition is also contained in the IA: "Allocation = Nomination Principle: means the procedures, operations and rules put in place by the Transmission System Operators finalized to guarantee to all the Shippers/Balance Groups sharing the same IP to have allocated the Scheduled Quantity of Gas, regardless, to a certain extent, to the actual metered Gas quantity."

IA Art. 4. sets the requirement to maintain the OBA close to 0: "The Parties agree to make their best efforts to keep the OBAs as close as possible to zero".

Roles and procedure for the allocation process and the determination of the steering differences are defined in Art. 3.3 of the IA. TAGG, as TSO responsible for the metering equipment, communicates the allocated and metered quantities, the value of the OBA and the daily steering differences to SRG. IA Art. 3.3. "Not later than 09.00 CET of each Gas Day, referring to the Gas Day D-1, the commercial dispatching of TAGG shall transmit the report embedded in Annex 8 ("Daily and Monthly Report") to the commercial dispatching of SRG containing:

- a) the Allocated Quantity at the IP expressed in MWh, Sm3 and Nm3;
- b) the Daily Measured Quantity at the Border Metering Station Arnoldstein, expressed in MWh, Sm3 and Nm3;
- d) the DUQs, expressed in Nm3/Day, Sm3/Day, and MWh/Day;
- e) the value of the OBAs, expressed in Nm3, Sm3, and MWh."

Annexes 4, 7 and 8 of the IA specify the data exchanged by the parties for the purpose of the allocation.

⁹² - Art. 4.5.3. - OBA - the IA provides some instances when the OBA rule does not apply. This rule pertaining to pro - rata allocation, was published for consultation by both operators, on May 2015. The allocation rule adopted as a result of the afore mentioned public consultation process.

⁹³ 7.1 point: The allocated daily quantity for Network Users= the latest matched volumes in kWh. 4.1. point: The Operator of the relevant measuring station determined in accordance with Article 5 of this IA shall carry out gas flow control to ensure that the balance of the sum of all confirmed nominations and the total measured gas quantity is at every moment as close to zero as possible.

Question	Assessment criteria	Austria - Italy	Belgium - Germany	Bulgaria - Greece	Bulgaria – Romania ⁵⁹	Croatia - Hungary	Germany - France	Hungary - Romania	Spain - Portugal
if the rule is the OBA, does it follow requirements set by article 9.3.c	closer look at the section on allocated quantities expectation: explicit mention of the rules set in article 9.3.c	Yes - see above	YEs - The clear legal obligations set out by NC INT were taken into account when the OBA-limit has been defined; no need to explicitly refer to 9.3c; The OBA-limit is mentioned in Appendix G4; rules concerning the extension of the limit and pro rata allocation are described in G5 to G7.	Yes - refer to art 4.6.2. ⁹⁴	No - No explicit mention	No - No explicit mention	Yes - Article 4.3 and 4.6 of the Amendment	No explicit mention ⁹⁵	No explicit mention ⁹⁶ .
If the rule is not OBA, have NUs been invited to comment on it?	closer look at the section on allocated quantities expectation: clear reference to a consultation process	Not applicable	Not applicable	Art 4.5.3. ⁹⁷ -	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Is there a communication procedure in place, in case of exceptional events, to inform adjacent TSOs and potentially affected Nus?	closer look at the section on communication procedures expectation: detailed mention of the communication process	Yes	Yes - appendix F3.3	Yes - Art. 5.6	Yes - Art. 20.2	Yes - Art. 20.2	Yes - Art. 8	Yes - Art. 13.3	Yes
Is the dispute settlement process specified	closer look at the section on dispute settlement expectation: detailed mention of the settlement process	Yes	Yes - Art. 7.1, Art. 7.2	Yes - Art. 10.2	Yes - Art. 4	Yes - Art. 18	Yes - Art. 15	Yes - Art. 18	Yes
Is the applicable law and court of jurisdiction designated?	closer look at the section on dispute settlement expectation: explicit mention of the law and jurisdiction	Yes	Yes - Art. 7.2	Yes - Art. 10	Yes - Art. 18	Yes - Art. 18	Yes - Art. 14	Yes - Art. 18	Yes
Is there a transparent and detailed amendment process in place?	closer look at the section on amendment expectation: detailed process	Yes ⁹⁸	Yes - Art. 6.3	Yes - Art. 11	Yes - Art. 4	Yes - Art. 15	Yes ⁹⁹ -	Yes- Art. 15	Yes

Source: ACER

⁹⁴ The LR have been specified taking into consideration the parameters referred in Art. 9.3.c of the Regulation, however the relevant technical analysis is not included in the IA.

⁹⁵ From the TSO, Art. 9.3.c stipulates criteria to take into account when establishing the level of OBA limit. The Parties took into consideration these requirements when determined the limit (10.000.000 KWh).

⁹⁶ From the TSO, Art. 9.3.c stipulates criteria to take into account when establishing the level of OBA limit. The Parties took into consideration these requirements when determined the limit (10.000.000 KWh).

⁹⁷ OBA - the IA provides some instances when the OBA rule does not apply. This rule pertaining to pro - rata allocation, was published for consultation by both operators, on May 2015. The allocation rule adopted as a result of the aforementioned public consultation process.

⁹⁸ Art. 15 of the IA sets the rules for dispute resolution. "This Interconnection Agreement is executed in English and shall be governed by and construed in accordance with the Italian law with the exclusion of all rules governing conflicts of laws.

All disputes arising out of or in connection with this Interconnection Point Agreement (including controversies relating to its validity, performance and termination) shall be finally settled by an arbitration under the Rules of Arbitration of the Arbitration Chamber of Milan ("Regolamento della Camera Arbitrale" di Milano) by one arbitrator to be appointed upon agreement of the Parties within [30] Business Days from the request for arbitration or, should no agreement be reached between the Parties on such appointment, by the Arbitration Council (Consiglio Arbitrale) of the Arbitration Chamber (Camera Arbitrale) of Milan in accordance with the above-mentioned Rules."

The detail procedure and deadlines are defined by the rules of selected arbitration chamber. (<https://www.camera-arbitrale.it/en/arbitration/arbitration-rules.php?id=64>).

⁹⁹ Amendment process is described in the existing contract (signed before 21st May 2015).

Annex 6: Data Exchange

- (127) This annex presents the context of the implementation of data exchange policies:
- a. the main concepts;
 - b. the CNOT published by ENTSOG;
 - c. the legal debate about the binding nature of this CNOT.
- a) **Definitions**
- (128) **Common Network Operation Tools** - Article 8 of Regulation 715/2009 requests that ENTSOG adopts CNOTs to ensure coordination of network operation in normal and emergency conditions. CNOTs are technical handbooks. The topic is set by the Regulation. The content is defined by ENTSOG. The industry follows these handbooks. This approach allows technical harmonisation while avoiding that technical details are defined in the Regulation and therefore are difficult to amend. The legal request for a CNOT on data exchange is set in Article 24 of the Code.
- (129) **Common Data Exchange Solution** – a data exchange solution defines the communication between parties. It defines:
- a. **the content and structure of the communication:** what information should be reported via a given channel and how this information should be presented;
 - b. **the means for communicating:** the technical solution, identified as a type, comprising a format, a protocol and a network.
- (130) **Data exchange** types refer to general approaches to data exchange:
- a. **document based** : is a document transfer between systems (e.g. AS4);
 - b. **integrated:** is a direct exchange of information between applications;
 - c. **interactive:** exchanges are based on an interactive dialog controlled by the initiator of the communication (e.g. web browser).
- (131) Data exchange types further describe involved parties (machine-to-machine, human-to-machine...) and their role (client – server, peer-to-peer).
- (132) **Network** refers to the network used by the parties to communicate. A network can be public (internet) or private (ISDN).
- (133) **Format** refers both to the structure of the data from a technical perspective (e.g. CSV, XML) and from a business perspective (EDIGAS).
- (134) **Protocol** refers to the rule of communication enabling data exchange.

b)

c) Data exchange: ENTSOG CNOT

- (135) Pursuant to Article 24 of the Code, ENTSOG published on the 17 November 2016 a common network operation tool harmonising the approach to be taken by transmission system operators regarding means of communicating with third parties.
- (136) Pursuant to Article 6(3) of the EC Regulation No 713/2009¹⁰⁰, the Agency delivered a favourable opinion on the CNOT on the 9 February 2017¹⁰¹.
- (137) From 15 March to 30 April 2017, the Agency ran a public consultation aimed at gathering the views of stakeholders regarding the implementation of the Code, concerning the issues of Interconnection Agreements, Gas Quality and Odourisation and Data Exchange.¹⁰²
- (138) The evaluation of responses confirms that there is a problem to be solved.
- (139) Table 15 gathers the reactions from respondents regarding a potential positive outcome from the implementation of the CNOTs. Opinions about the current CNOT are divided. Remarks relate to the decision process and the chosen solution.

Table 15: Opinion of the respondents on if the CNOT will positively influence their situation

	Producer	Shipper	Storage	TSO	Total
No	2	1		2	5
Yes		2		3	5
Total	2	3		5	10

Source: ACER

- (140) Although the Agency acknowledged that ENTSOG fulfilled its obligations with a proper involvement of stakeholders, the Agency suggests that ENTSOG tests in the coming year the conclusions which led to the current CNOT, assessing the degree of implementation of the standard and possible reasons for a delay in implementation.

d) Legal Debate: is it mandatory for the TSOs to implement the CNOT published by ENTSOG?

a. Legal basis

- (141) Recitals 2 and 3 of the Code recognise that “*the lack of harmonisation in technical, operational and communication areas could create barriers to the free flow of gas in the Union, thus hampering market integration. Union interoperability and data exchange rules should allow the necessary harmonisation in those areas, therefore leading to effective market integration*”. As a result, the Code has the purpose and objective of encouraging and facilitating the “*efficient gas trading and transmission across gas transmission systems within the Union, and thereby to move towards greater internal market integration*”.
- (142) Recital 8 of the Code provides that “*chapter V of the Code should ensure the appropriate degree of harmonisation of data exchange [...aiming at] facilitating cross-border transmission activities*”.

¹⁰⁰ 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 (Text with EEA relevance), OJ L 211, 14.8.2009, p. 1–14.

¹⁰¹ http://www.acer.europa.eu/official_documents/acts_of_the_agency/opinions/opinions/acer%20opinion%2004-2017.pdf.

¹⁰² http://www.acer.europa.eu/Official_documents/Public_consultations/Pages/PC_2017_G_01.aspx.

- (143) Article 1 of the Code establishes that it has application at the interconnection points within the Union¹⁰³.
- (144) Article 21 of the Code, entitled "Common data exchange solutions", specifies features to be found in common data exchange solutions, and mandates ENTSOG to initiate suggestions to ACER regarding changes to the common data exchange solutions.
- (145) According to Article 24 of the Code, "ENTSOG shall develop a common network operation tool in accordance with Article 8(3) (a) of Regulation (EC) No 715/2009 and shall publish it on its website. *A common network operation tool shall specify the common data exchange solution relevant for the respective data exchange requirement. A common network operation tool may also include business requirement specifications, release management and implementation guidelines.*"

b. Legal basis: various interpretations

- (146) The differing interpretations concern the mandate given by Article 24(1) of the Code to ENTSOG for specifying the common data exchange solution specified in Article 21 of the Code, for each data exchange requirement foreseen by Article 20(2) of the Code. This refers to elements defined at:
- a. point 2.2 of Annex I to Regulation (EC) No. 715/2009,
 - b. Commission Regulation (EU) No. 984/2013 (CAM NC),
 - c. Commission Regulation (EU) No. 312/2014 (BAL NC),
 - d. Commission Regulation No. 1227/2011 (REMIT) and
 - e. Commission Regulation (EU) No. 703/2015 ("the Code").
- (147) The interpretations differ on the following point: is the choice and the development of the "CNOT" made by ENTSOG binding for the TSOs, unless otherwise approved by the concerned NRAs?
- i. **The Agency's interpretation: TSOs are obliged to implement CNOTs, and in particular the data exchange solution table developed by ENTSOG.**

*ENTSOG **must** develop CNOTs*

- (148) Article 24(1) of the Code mandates ENTSOG to develop a common network operation tool (CNOT) in relation to each data exchange requirement envisaged by Article 20(2) of the Code. The purpose is established at Recitals 2 and 3 of the Code.

*The CNOT **must** identify the relevant common data exchange solution.*

- (149) According to article 21 of the Code, combined with Article 24 of the Code, ENTSOG has the option to select one or more of the three types of data exchange. Article 24(1) of the Code requests that ENTSOG select one CNOT.
- (150) *"For each data exchange requirement under Article 20(2), ENTSOG **shall** develop a common network operation tool in accordance with Article 8(3) (a) of Regulation (EC) No 715/2009 and shall publish it on its website. A common network operation tool shall specify **the** common data exchange solution relevant for **the** respective data exchange requirement".* The use of the definite article "*the*" implies the unicity of the solution.

¹⁰³ Provided that derogations on the basis of Article 49 of Directive 2009/73/EC do not apply. Also, as regards entry points from and exit points to third countries, the Code may apply subject to the decision of national authorities.

- (151) The Code refers to Article 8(3) (a) of Regulation (EC) No. 715/2009, pursuant to which ENTSG must adopt “*common network operation tools to ensure coordination of network operation in normal and emergency conditions, including a common incidents classification scale, and research plans*”.

CNOTs must specify common data exchange solutions

- (152) The primary goal of the CNOT is the specification of “*the common data exchange solution relevant for the respective data exchange requirement*”. It may include additional business requirements specifications, release management as well as implementation guidelines. Again, the use of the definite article “*the*” implies the unicity of the solution.

TSOs must make available and use common data exchange solutions

- (153) Article 23 of the Code requests that TSOs make available and use the common data exchange solutions defined in Article 21: “*Depending on the data exchange requirements under Article 20(2) transmission system operators shall make available and use the common data exchange solutions defined in Article 21*”.

Conclusion

- (154) Article 24 of the Code gives ENTSG the mandate to specify the common data exchange solution for each data exchange requirement of the regulations referred to in Article 20(2) of the Code. Subsequently, all TSOs must make available the common data exchange solution which is defined in the CNOT as from the 1 May 2016. The obligation upon TSO has the purpose to facilitate efficient gas trading and transmission across gas transmission systems within the Union, and thereby to move towards greater internal market integration. Following Article 23(2) of the Code, existing data exchange solutions different from the common one identified by ENTSG, but compatible with Article 22 and with data exchange requirements under Article 20(2) can stay in place with NRA approval¹⁰⁴ in so far as they do not render the application of the Code ineffective or more difficult.

ii. *Alternative interpretation: TSOs are not obliged to implement CNOTs, and in particular the data exchange solution*

- (155) Some NRAs offered a different interpretation of the Code. This interpretation consists in an analysis of the legal basis and the Agency’s interpretation. The main elements of this alternative interpretation are provided in this section.

On the legal basis

- (156) Recitals may serve as an interpretation tool and complete the legal meaning provided in the articles.
- (157) Article 24 of the Code does not provide a legal basis to oblige TSOs to implement CNOTs. Article 24 of the Code is addressed to ENTSG. According to Regulation 715/2009, ENTSG is a legal entity independent from the TSOs. As Article 24 of the Code is explicitly addressed to ENTSG, the wording of the provisions speaks against an obligation for TSOs to implement CNOTs.
- (158) Article 24 of the Code in conjunction with Article 8(3) (a) Regulation 715/2009 are also not appropriate to serve as a legal basis. Article 8(3) (a) Regulation 715/2009 is also addressed to ENTSG only. Furthermore, Article 24 of the Code only substantiates Article 8(3) (a) Regulation 715/2009 in a more detailed way.
- (159) Article 24 of the Code in conjunction with Article 4 Reg. 715/2009 may not appropriate to serve as a legal basis. Article 4 Regulation 715/2009 obliges the TSOs to cooperate within ENTSG. By

¹⁰⁴ The Agency notes that some TSOs have interpreted this article as an interim measure, postponing the implementation of the CNOT. The impact of this interpretation will be assessed once the implementation has progressed.

cooperating and developing CNOTs the TSOs fulfilled this obligation, in a minimalistic reading of the article.

On the Agency's interpretation

- (160) The overall scheme of the Code suggests that Article 24 of the Code may not provide a legal basis for NRAs in order to oblige TSOs to implement CNOTs. Where Article 23 of the Code explicitly obliges TSOs to make available **and use** the common data exchange solutions defined in Article 21 of the Code, Article 24 of the Code only obliges ENTSOG to develop CNOTs. This is a strong signal that an obligatory use of the CNOTs is not intended by Article 24 of the Code.

Conclusion of the alternative interpretation

- (161) According to the alternative interpretation, there may be no obligation for the TSOs to implement the CNOTs in general, and the associated common data exchange solution table¹⁰⁵ in particular. The TSOs are obliged to implement and use the data exchange solutions defined in Article 21 of the Code.

iii. Level of harmonisation associated with each interpretation

- (162) Table 12 illustrates the level of harmonisation reached according to each of the interpretations of the Regulation. It focuses on the nomination process. It assesses the compliance of four TSOs. These TSOs have implemented different choices to common data exchange solutions on the one hand, and Protocol and data format on the other hand. The compliance is assessed first in a context where the CNOT is not mandatory, and then in a context where it is mandatory.

Table 16: Assessment of the compliance of the TSOs according to the data exchange solution chosen and the interpretation of the Regulation

	TSO 1	TSO 2	TSO 3	TSO 4
Process Area	Nomination	Nomination	Nomination	Nomination
Common Data Exchange Solution	Document Based*	Interactive	Document Based*	Document Based*
Protocol & data format (Art. 21 NC IO)	AS4 & Edig@s-XML*	HTTP/S	AS4 & EDIFACT	AS2 & Edig@s-XML
First Interpretation: the CNOT is not mandatory	compliant	compliant	non-compliant	non-compliant
Second interpretation: the CNOT is mandatory	compliant	non-compliant	non-compliant	non-compliant

Source: ACER

Note: * refers to technical approaches specified by the ENTSOG CNOT¹⁰⁶

- (163) The alternative interpretation¹⁰⁷, leaving each TSOs to decide upon the common data exchange solution to be implemented, does not result in full harmonisation. Should the CNOT not be mandatory, three data exchanges solutions could be implemented regarding a given operation. This is in contradiction with the initial intent of the Code¹⁰⁸, which was according to Recital 8 of the Code “to ensure the appropriate degree of harmonisation of data exchange [...aiming at] facilitating cross-border transmission activities”.
- (164) The Agency's interpretation, specifying that TSOs are obliged to implement CNOTs, achieves this goal. A mandatory CNOT results in a single default solution.

¹⁰⁵ <https://entsog.eu/publications/common-data-exchange-solution-table#COMMON-DATA-EXCHANGE-SOLUTION-TABLE>.

¹⁰⁶ See <https://www.entsog.eu/publications/common-data-exchange-solutions>.

¹⁰⁷ Currently, the following NRAs explicitly acknowledge the validity of the alternative legal interpretation: AT, DE, ES, IT, NL, SE.

¹⁰⁸ See Section 2.1.1.

Annex 7: Case Study – Approach to Data Exchange in Germany

- (1) The German market is the largest in terms of gas demand (866 TWh in 2015)¹⁰⁹. In 2015 – 2016, there were 16 TSOs active in two Entry/Exit zones (Gaspool and Net Connect Germany). The geography of the German network is such that there are in general several physical routes from a hub from one of the eight neighbouring Member States, to a German one. In several cases, these physical routes are owned by different TSOs. In addition, certain physical points belong to more than one TSO.
- (2) The issue of communication in general, and data exchange in particular, is particularly relevant because of the size and the central position of the German market in the EU, as well as the number of TSOs present in this market.
- (3) The German TSOs within the FNB Gas¹¹⁰ initiated a consultation process on data exchange¹¹¹ which ran from 18 December to 22 January 2016. BNetzA based its approach to data exchange, in its decision BK7-16-042¹¹² of 26 April 2016 on the outcome of this consultation.
- (4) According to BNetzA, i) the vast majority of the respondents to the TSO consultation stated they are not able to implement the data exchange solutions AS4/Edig@s-XML by 01.05.2016, and ii) the data format (“EDIFACT”) as well as the data protocol (“AS2”) in use meet the requirements of the network Code interoperability.
- (5) Following BNetzA’s decision, the approval to use the data format “EDIFACT” and the data protocol “AS2” for the communication between the TSOs and their counterparties is limited until 31 January 2018. Past that date, AS4/Edig@s-XML, as recommended by ENTSOG, becomes the only standard.
- (6) Taking into account the legal interpretation at the origin of the decision¹¹³, the Agency observes that the approach is pragmatic. It goes beyond the minimum requirements set in the Code as it sets an implicit obligation on all stakeholders to use AS4/Edig@s-XML by 1 January 2018. The costs faced by Network Users as a consequence of this obligation have not been estimated as part of a cost-benefit analysis.

¹⁰⁹ Unless otherwise specified, figures in the following section come from the ACER/CEER Annual Report on the Results of Monitoring the Internal Natural Gas Markets in 2015

¹¹⁰ Vereinigung der Fernleitungsnetzbetreiber Gas e. V. (FNB Gas) is the association of German Transmission System Operators. See <http://www.fnb-gas.de>

¹¹¹ Public consultation supporting document: http://www.fnb-gas.de/files/consultation_permission_data_exchange_en.pdf; questions: http://www.fnb-gas.de/files/consultation_network_code_interoperability_questionnaire_en.docx; responses (German only): http://www.fnb-gas.de/files/20160315_konsultationsantworten_nc_int.zip; evaluation of the responses (German only): http://www.fnb-gas.de/files/fnb_gas_auswertung_konsultation_datenaustausch.pdf

¹¹² https://www.bundesnetzagentur.de/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK7-GZ/2016/2016_0001bis0999/2016_0001bis0099/BK7-16-0042/BK7-15-0042_Beschluss_BF_download.html

¹¹³ See Annex 6.

Annex 8: List of questions supporting the data collection performed by ENTSOG

- (7) The following list of questions was used by ENTSOG to collect information from its members. The majority of questions was multiple choice (“yes”, “in progress”, “not applicable”). Other questions were open. Evidence underpinning these answers was not collected by ENTSOG.

a) General questions

Article 17 (3) a): Has the list of parties entitled to receive indicative gas quality information been defined?
Article 17 (3) b): Has a process of cooperation been started to assess what information might be provided to the relevant parties?
Article 17 (3) b) What information has been regarded relevant?
Article 17 (3) b) What is the frequency for information provision?
Article 17 (3) b) How long is the lead time?
Article 17 (3) b) What is the method of communication?
Document based DE using AS4 protocol and Edig@s XML data format
Integrated DE using HTTP/S-SOAP protocol and Edig@s XML data format
Interactive DE using HTTP/S
Article 22. Are the Data Exchange system security and availability requirements met?
Related to the previous question: If not, why and by when?
a) Nomination and Matching Process
b) CAM/CMP
Article 23 (2) Are other existing data exchange solutions staying in place? (please comment)
Are the other solutions staying in place approved by the NRA?

b) Questions related to specific IPs

General topics	IP NAME/ LOCATION
General topics	EIC or identifier for IP
General topics	TSO
General topics	Country
General topics	2.1: Please add any missing or strike-through any superfluous IPs or indicate any other amendments and justify the changes.
General topics	3. Is there a signed IA in place?
3. Terms covered in IA	3.a. Rules for flow control
3. Terms covered in IA	3. b. Measurement principles for gas quantities
3. Terms covered in IA	3.b Measurement principles for gas quality
3. Terms covered in IA	3.c. Matching process
3. Terms covered in IA	3.d. Allocation rules
3. Terms covered in IA	3.e Communication procedures in case of exceptional events
3. Terms covered in IA	3.f. Settlement of disputes
3. Terms covered in IA	3.g. Amendment process
3. Terms covered in IA	4.1 Have you identified information contained in IA that directly affects NUs and informed them?
4.2 Since application date of the INT NC and before concluding or amending an agreement, have you invited network users to comment on the proposed text for	Matching?

4.2 ... have you invited network users to comment on the proposed text for	Allocation?
4.2 ...have you invited network users to comment on the proposed text for	Communication procedure in the case of exceptional events?
4.2 ... have you invited network users to comment on the proposed text for	4.3. Have you ensured internally that if an agreement is concluded or amended the relevant terms are sent to ENTSOG within 10 days?
4.2 ... have you invited network users to comment on the proposed text for	Have the NRAs asked for a submission?
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.1.c Designation of TSO responsible for steering
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.3.a Matching rule
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.3.b Allocation rule
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.3.c Flow control arrangements
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.3.d Gas Quality including any arrangement pursuant to Article 15
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.3.d Odourisation including any arrangement pursuant to Article 19
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.4.a Safety legislation
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.4.b Emergency plans
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.4.b Preventive action plans
6. Regarding flow control rules, for how many of each of the following topics have been taken into consideration	6.4.c Exceptional events
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.1. a details of the measurement standards applicable established?
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.1. b Designation of the TSO responsible for Installation, Operation & Maintenance?
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.2 national regulations?
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3. a Description of the station and its equipment.
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3. b Parameters and details: units, range, uncertainty and frequency of measurement.
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3. c Calculations procedures.
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.D Maximum permissible error in energy.
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.e Data validation
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.f Verification and adjustment
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.g Data provision content and frequency
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.h List of signal and alarms
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.i Corrections to measurements

7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3.j Equipment failure management
7. Regarding measurement principles on the IA, are the following topics or principle addressed	7.3. k Rules for facility access, additional verification, modification and attendance during calibration.
8. Rules for matching process	8.1. a Have rules detailing the matching process been established?
8. Rules for matching process	8.1. b Have rules detailing communication and processing of data been established?
8. Rules for matching process	8.2; 8.5.a What is matching rule in place?
8. Rules for matching process	Description of the "other" rule
8. Rules for matching process	8.2. a Does the "other rule" lead to confirmation of identical quantities to each pair of Nus at both sides of the IP?
8. Rules for matching process	8.2. b In case "Other Rule" than the "Lesser Rule" is applied, have been network users invited to comment on it?
8. Rules for matching process	8.2. c; 8.5.b Which is the TSO responsible for the matching process?
8. Rules for matching process	8.2. d. Has a time schedule taking no longer than two hours been defined?
8. Rules for matching process	Comments on other time schedule
8. Rules for matching process	8.3 Are temporary reduction of capacities taken into account?
8. Rules for matching process	8.4 Are data exchange use and the harmonised information specified?
9. Rules for allocation of gas quantities	9.2 What is the allocation rule in place?
9. Rules for allocation of gas quantities	9.2 If the rule is OBA, is it recalculated by the TSO in control of the measurement equipment?
9. Rules for allocation of gas quantities	9.3 If the rule is OBA, have been the principles laid out in 9.3 been considered in the agreement?
9. Rules for allocation of gas quantities	9.4 If the rule is not OBA, what is it?
9. Rules for allocation of gas quantities	9.4 If the rule is not an OBA, have been NUs invited to comment on it?
9. Rules for allocation of gas quantities	10. In case of "exceptional event" is there a procedure to inform adjacent TSOs and potentially affected network users?
11. Settlement of disputes	11.1.a Does the dispute settlement mechanism specify the applicable law?
11. Settlement of disputes	11.1. b Does the dispute settlement mechanism specify the court of jurisdiction or the terms and conditions of appointment of experts?
11. Settlement of disputes	12. Have you established a transparent and detailed amendment process?
13. Common set of units	13. Is the set of units and referenced conditions defined used for every data exchange and publication?
13. Common set of units	13. If not, why?
13. Common set of units	14. Has an additional set of units been defined?
15. Managing cross-border trade restrictions due to gas quality differences	15. Is there any cross-border trade restriction due to gas quality that cannot be avoided by the standard operations of the TSOs and that has been recognised by NRAs?
15. Managing cross-border trade restrictions due to gas quality differences	15. Only if previous answer is affirmative, when was the restriction identified?
15. Managing cross-border trade restrictions due to gas quality differences	15. Only if one but previous answer is affirmative, what is the status of the process to remove the restriction?
16 Transparency obligations	16. Are WI and GCV published on your website for each IP that acts as an entry point and once per hour?
19 Odourisation	19 Is there any cross-border trade restriction due to differences in odourisation practices that cannot be avoided by the concerned TSOs and that has been recognised by NRAs?
20 Odourisation	19. Only if previous answer is affirmative, what is the status of the process to remove the restriction?
Survey Conclusion	Comments to any of the previous questions



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