

Public consultation on amendments to the gas network code on interoperability and data exchange

Fields marked with * are mandatory.

Introduction

The European gas market is evolving in response to ongoing policy and technological developments. This is essential to meet the decarbonisation and market integration objectives established under the European Green Deal.

To contribute to this goal — and following a mandate introduced by the 2024 Gas Decarbonisation Package — ACER has initiated a gradual review of all EU gas network codes. ACER's reviews started in 2024 with proposing amendments to the Capacity Allocation Network Code, currently under discussion in a comitology process with Member States.

Responses to the European Commission's latest Network Code Review Priority List survey, conducted in autumn 2024, highlighted the importance of looking into a possible revision the Interoperability and Data Exchange Network Code (INT NC) in second place after the CAM NC. The INT NC outlines the technical procedures applied by Transmission System Operators (TSOs) within the EU — and, where relevant, by operators in the Energy Community and non-EU neighbouring countries — to facilitate the coordinated operation of gas systems. The possible revision of the INT NC could help to better align the existing gas system operation rules with the Gas Decarbonisation Package policy ambitions but also with an evolving EU gas market.

Important in this context, the 39th Madrid Gas Regulatory Forum in April 2025 welcomed the new gas quality standard EN 16726 developed by the European Committee for Standardization (CEN), highlighting its importance in removing barriers to the free flow of natural gas within the internal energy market. The Forum called for a public consultation to assess the need, timing, and scope of a potential amendment to the Interoperability Network Code for ensuring consistent implementation of the standard across EU markets. This is a mandate ACER is fulfilling via this public consultation.

With this Public Consultation, ACER invites stakeholders to actively participate in the INT NC potential review, providing feedback on the proposed scope for improvement and submitting proposals on areas that could be

considered for amendment.

The input from the consultation will be used for the Agency's evaluation on the need for the amendment and in preparing a potential proposal to amend the code. Should the need for a revision be established, the actual proposals for amendment would be reviewed in a second public consultation.

1. Target group

This consultation is addressed to gas transmission system operators operating in the EU, gas network users, National Regulatory Authorities, consumers associations and government as well as any interested market participants. [...]

Deadline

Replies to this consultation should be sent: by ~~20 May~~ 10 June 2026, 23:59 hrs (CET)

2. Respondent's data

* Name and Surname of the contact person

[REDACTED]

Phone number

* Email address

[REDACTED]@entsog.eu

* Name of organisation / company

ENTSOG (European Network of Transmission System Operators for Gas)

Type of organisation

- ☐ Gas transmission system operators (TSOs)
- ☐ Network users (e.g., gas shippers, traders, suppliers)
- ☐ Virtual Trading Point (VTP) operators
- ☐ Capacity booking platform operators
- ☒ Industry associations (e.g., ENTSOG, ETE, IFIEC, CEN, EASEE-gas, Marcogaz)
- ☐ Renewable gas and hydrogen producers
- ☐ Consumer and environmental organisations

- ☐ Academic and research institutions
- ☐ Other interested stakeholders
- ☐ NRAs

*** Please specify “other”**

n/a

*** Country**

- ☒ EU-27
- ☐ Other

*** Please specify the country**

- ☐ AT - Austria
- ☒ BE - Belgium
- ☐ BG - Bulgaria
- ☐ HR - Croatia
- ☐ CY - Cyprus
- ☐ CZ - Czechia
- ☐ DK - Denmark
- ☐ EE - Estonia
- ☐ EU - European Union, for associations covering all EU
- ☐ FI - Finland
- ☐ FR - France
- ☐ DE - Germany
- ☐ EL - Greece
- ☐ HU - Hungary
- ☐ IE - Ireland
- ☐ IT - Italy
- ☐ LV - Latvia
- ☐ LT - Lithuania
- ☐ LU - Luxembourg
- ☐ MT - Malta
- ☐ NL - Netherlands
- ☐ PL - Poland
- ☐ PT - Portugal
- ☐ RO - Romania
- ☐ SK - Slovak Republic
- ☐ SI - Slovenia
- ☐ ES - Spain
- ☐ SE - Sweden

3. Data protection

ACER will process personal data of the respondents in accordance with [Regulation \(EU\) 2018/1725](#), taking into account that this processing is necessary for performing ACER's consultation tasks. More information on data protection is available on [ACER's website](#) and in [ACER's data protection notice](#).

ACER will not publish personal data.

Consent to the processing of personal data

☒ Your personal data may be processed by the Agency.

Please refer to [privacy statement](#) to learn about such processing and your rights.

4. Confidentiality

Following this consultation, ACER will make public:

- the number of responses received;
- company names, unless they should be considered as confidential;
- all non-confidential responses; and
- ACER's evaluation of responses. In the evaluation, ACER may link responses to specific respondents or groups of respondents.

You may request that the name of your company or any information provided in your response is treated as confidential. To this aim, you need to explicitly indicate whether your response contains confidential information. **You will be asked this question at the end of the survey.**

☒ I have read the information on data protection and confidentiality provided in this section.

5. Related documents

- [Regulation \(EU\) 2019/942](#) of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators.
- [Regulation \(EU\) 2019/943](#) of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast).
- [Directive \(EU\) 2024/1788](#) of the European Parliament and of the Council of 13 June 2024 on common rules for the internal markets for renewable gas, natural gas and hydrogen, (recast).
- [Regulation \(EU\) 2024/1789](#) of the European Parliament and of the Council of 13 June 2024 on the internal markets for renewable gas, natural gas and hydrogen (recast).

- [Commission Regulation \(EU\) 2015/703](#) of 30 April 2015 establishing a network code on interoperability and data exchange rules.
- EN 16726:2026 (CEN) – standard on gas infrastructure - quality of gas - group H superseding EN 16726:2015+A1:2018.
- ENTSOG Network Code on Interoperability and Data Exchange Rules – [5th Implementation Monitoring Report](#)
- Functionality Platform (FUNC) issues:
 - [01/2018 on Communication protocol and encryption](#), reported by: GasTerra B.V.
 - [02/2018 on Communication protocol and encryption](#), reported by: ENGIE
 - [06/2018](#) on Communication protocol and encryption, reported by: EASEE-gas
 - [01/2019](#) on Missing harmonisation of interfaces on capacity platforms, reported by: Equinor ASA
- [CREG decision \(B\) 2738](#) - Décision relative à la proposition d'Interconnector Limited visant à modifier le contrat d'accès Interconnector (IAA), le règlement d'accès Interconnector (IAC) et le programme d'accès Interconnector (IAAS), 2024.
- [ACER Guidance Note](#) on Consultations

6. Document Structure

To help identify the scope of any potential amendment to the INT NC, ACER has conducted since June 2025 a series of stakeholder workshops and technical consultations. These engagements resulted in the identification of three core areas for potential refinement:

- Two identified topics pertain to areas already addressed within the current code, namely **1. Gas Quality** and **2. Data Exchange**
- The third topic introduces an element not directly addressed by the current code: **3. Liability provisions in Interconnection Agreements.**

Accordingly, this consultation is structured into three chapters, each focusing on one of these core areas.

It is important to underline that this initial consultation is not a formal document setting out concrete legal proposals to revise the rules governing gas transmission interoperability and data exchange in Europe. Instead, the consultation adopts an exploratory and discussion-oriented approach to explore the actual needs of the different market participants and the system in general. The intention is to ensure that any future regulatory framework is firmly grounded in operational realities and the expectations of different stakeholders.

Each chapter begins with an introduction describing the relevant provisions of the existing code. This is followed by an assessment of the implementation status and/or a description of the technical options chosen when implementing those provisions at the different EU systems. In doing so, ACER mostly but not only relies on the recently published INT NC implementation monitoring report prepared by ENTSOG and published in

The chapters then outline how the current provisions could be progressed, and they close with questions addressed to stakeholders on whether there is a need to revise the current provisions or whether the existing framework should be maintained, possibly complemented by targeted adjustments and/or non-binding guidance.

7. Liabilities provisions in Interconnection Agreements

7.1 Introduction

General liabilities, including those related to off-specification gas quality, are not currently covered in the INT NC. Nevertheless, during the assessment of potential amendments to the INT NC, this issue was raised with ACER. In turn, ACER requested that ENTSG include the topic of liabilities for off-spec gas quality in the [Network Code on Interoperability and Data Exchange Rules – 5th Implementation Monitoring Report](#). At this stage, two key points from the report can be highlighted:

1. Off spec gas quality can occur within EU gas systems; however, such cases remain infrequent.
2. In 2018 liability discussions were extensively deliberated upon during the development of the GT&C template,

In what the review of the INT NC is concerned, if that is the need/option of the stakeholders it could aim to set clearer EU wide-harmonised guidance to address liability concerns arising from the exposure of market participants - be it end-users, shippers or TSOs - to penalties or losses resulting from the delivery and redelivery of non-compliant gases that need to be aligned to agreed standards. Further guidance could be particularly offered to situations when deviations arise at the transportation of gas through interconnection points, and aspect that could be addressed via a review of Interconnection Agreements (IAs).

7.2 Market Status and Identified Issues

Interconnection Agreements, transmissions agreements, national regulations and/or gas contracts General Terms & Conditions (GT&C) [1] define the general duties and responsibilities among gas TSOs on the one hand, and between TSOs, shippers and users on the other hand. The IA provisions among TSOs as detailed in Article 3 of the INT NC must include rules for flow control; measurement principles for gas quantities and quality; rules for the matching process; rules for the allocation of gas quantities; communication procedures in case of exceptional events and settlement of disputes; and amendment process for the IAs themselves. Since it is not in their remit of scope, they lack specific liability provisions related to shippers (e.g., liabilities in the event of an operational failure resulting from non-compliant gas quality, after entering the system with the proper specification, as those will be covered by gas contracts or national law, not IAs). Regarding TSOs,

liability provisions between the IAs signatories (adjacent TSOs) are included in many IAs. The EU picture is diverse, since it is not mandated by the code's Article 3.

The absence of specific provisions or general principles effectively reflecting responsibilities and potentially implied liability of involved parties in such cases could affect the non-discriminatory operation of the system and – depending on the scale of the deviations and the cost of the correction measures needed – may also have certain local impact on the affected markets. ACER has knowledge of only one case where concerns related to the above mention issue were raised - [CREG decision \(B\) 2738](#) paragraph 141 to 145.

According to the latest ENTSOG Implementation Monitoring Report, , IAs are generally considered stable and functional instruments that support the management of technical constraints and the smooth operation of cross-border points. The report states that off-spec gas quality cases seldom lead to disputes or disruptions - three contained examples have been cited in ENTSOG's report that required some TSO interventions but did not constitute disruptions to the normal functioning of the system.

The question on possibly harmonising broader liability regimes was previously discussed during the development of the GT&Cs [2] of gas transport contracts in 2018. Then, it was concluded that no harmonisation was possible as liability frameworks vary widely across Member States due to national laws. [AC ER Opinion No 06-2018](#) [3] on Template for main terms & conditions for bundled capacity products for Gas stated at the time, mentioned that while the topic was not suitable for harmonisation in that template, it should be foreseen at least as a subject to be covered in the individual contracts. Likewise, the same thinking could be extrapolated to IAs; if harmonisation is not possible, at least IAs could mention the key provisions governing liabilities. ACER's opinion No 06-2018 also underscored that, wherever possible, best practises should be provided, which could apply for the case of liabilities.

Although the ENTSOG GT&C gas contracts' template as said does not include a chapter on liabilities, it indicates the overall responsibilities regarding gas quality, as follows:

1. Responsibility for fulfilling the gas quality specifications at the entry point of the transmission system lied with the network user.
2. Responsibility for fulfilling the gas quality specifications at the exit point of the national transmission system subject to the country and the TSO's network specific conditions of any sort (statutory and contractual conditions, operational constraints, etc.) lied with the TSO.

The ENTSOG report also tables information about the current liability clauses for gas quality issues and their application:

- 85% of TSO–shipper contracts define gas quality liability provisions in the General Terms and Conditions of the contracts, even in cases when national legislation also applies. Overall, 58% of TSOs rely on both national law and contractual liability rules, 27% relies solely on defined contractual liability rules while the last 15% of them rely solely on national legislation.

- 65% of TSOs already apply gas quality liability clauses in at least in one of their agreed Interconnection Agreement, with other TSOs.

[1] ENTSOE Template Contract of Main terms and conditions for the offer of bundled capacity products in accordance with article 20 of Commission Regulation (EU) 2017/459 establishing a network code on capacity allocation mechanism in gas transmission systems ("CAM NC") ([link](#))

[2] ENTSOE Template Contract of Main terms and conditions for the offer of bundled capacity products in accordance with article 20 of Commission Regulation (EU) 2017/459 establishing a network code on capacity allocation mechanism in gas transmission systems ("CAM NC") ([link](#))

[3] [ACER Opinion 06-2018](#) on Template for main terms & conditions for bundled capacity products_Gas.pdf

7.3 Areas for Improvement and Potential Regulatory Options

Some stakeholders have expressed interest in clearer repartitions of responsibilities and underlying liabilities, as well as in developing general rules translating the principle of making parties responsible for the tasks on which they truly have control, particularly regarding gas quality aspects.

Ahead of exploring the more detailed views of market participants in Section 7.4, regarding potential regulatory options, including a 'business-as-usual' scenario, ACER puts forward an initial practical suggestion on how a potential amendment to the Network Code could tackle the liability question:

Update Article 3, Article 4 and Article 5 to include liability for gas quality matters

- **Article 3 on IAs General Provisions** could include, an additional paragraph (h) requiring operators to include in their interconnection agreements information regarding the liability regime applicable for gas quality issues, among operators involved in the interconnection agreement.
- Complementarily, **Article 5 of IAs Template** could be amended accordingly, so that the IA template includes a section on liabilities in which TSOs could include information on the liability regime applicable among operators for gas quality issues (general and non-confidential provisions).
- Finally, **Article 4**, requires that before concluding or amending an Interconnection Agreement TSOs shall seek network users' comments, for the rules referred to in Article 3(c), (d) and (e). This article could be amended accordingly to extend the consultation to an additional paragraph (h) in Article 3 on liabilities.

These types of changes could potentially be formalise in the network code with the aim of increasing clarity among TSOs. However, this transparency enhancement proposal is without prejudice to the level of harmonisation and the scope of an EU-level framework versus more general guidance, which are addressed in the following set of questions.

7.4 Proposed Public Consultation Questions

Question 1 — Assessment of Current Functioning

1. Do you consider that the liability provisions in the current contractual and legal framework – set out in current IAs or included in the transport contracts and national law – and particularly, those related to gas quality are fit for purpose?

In your response, please describe, if possible, the relevant framework governing liabilities and explain how it informs your view.

ENTSOG considers that the liability provisions in the current contractual and legal framework are fit for purpose.

In this context, it should be noted that ENTSOG developed an extensive analysis underpinning the 2025 ENTSOG Interoperability and Data Exchange Network Code Implementation and Monitoring Report (INT NC IMR) at ACER's request. This analysis carefully presents the issue, provides unbiased technical conclusions, and identifies a number of potential challenges and risks that could arise from modifying the current liability framework.

Several identified elements are particularly relevant in characterising the current framework:

- The scope of the INT NC primarily focuses on Interconnection Points (IPs) and TSOs
- The INT NC is a technical Network Code (NC) and not a civil law instrument
- The principles of subsidiarity and proportionality must be respected; NCs should not go beyond what is necessary to achieve the objectives of the Gas Regulation
- Liability matters are governed by MS civil law. Contracts between the parties are in place and are subject to the applicable governing law
- Significant differences in legal principles and jurisprudence across MSs render EU level harmonisation highly complex, and even impracticable.

In addition:

- The INT NC sets out provisions for Interconnection Agreements (IAs), contractual arrangements between adjacent TSOs defining specific provisions or general principles effectively reflecting responsibilities between the signatories. Liability provisions reflect national legislative specificities, remain at the discretion of the parties, and are proportionate to the responsibilities defined in the IAs. Applicable legislation is commonly referenced in the IAs
- IAs are contracts with a clearly defined local scope, namely the IP
- Moreover, IAs are contracts of a technical nature; where they include liability provisions, these relate to matters to be agreed between the signatory parties and cannot necessarily be harmonised through EU regulation
- The impact of possible off spec gas on the system can differ depending on IP and flow patterns in given systems.
- TSO–shipper liability regimes typically extend beyond this scope and should not be conflated with TSO–TSO arrangements, as this may introduce unnecessary legal complexity or incompatibilities
- Where contracts with shippers exist, they are generally based on GT&C templates, which are typically published and transparent. Any changes are consulted on with the market before being implemented.
- No gaps in MSs legislative frameworks governing liability have been identified.

Apart from the case mentioned by ACER, to ENTSOG's knowledge there were no occurrences that have led to disputes over liability nor compensation for damages nor any interruptions of transport during the period

assessed. This clearly shows the rare nature of such issues. Moreover, the report (written in French) is a clear indication of the geographically constrained nature of the issue described – ENTSOG is of the opinion that regional issues should continue to be addressed as local matters and resolved at that level.

Moreover, altering the existing framework or responsibility allocation could trigger unforeseen and undesirable system impacts, as highlighted by the INT NC IMR. At the same time, current responsibilities are not considered problematic or a barrier to cross-border trade. Changes to liability regimes risk unintended consequences, inconsistencies, and the undermining of existing contractual rights and obligations, potentially increasing TSOs' operational risks and costs (and, consequently, societal costs) and ultimately jeopardising security of supply.

Finally, as TSOs are regulated entities, modifying liability schemes may require compensation via tariff adjustments. Any increase in TSO responsibilities or potential liabilities must be reflected in tariffs, leading to higher costs for end users.

Given these considerations, ENTSOG strongly recommends that liability provisions remain governed at national level and through existing contractual arrangements, and that the INT NC status quo is maintained. Amending the INT NC would introduce unnecessary legal complexity to address a rarely occurring issue at EU level (one case mentioned by ACER in this consultation). Significant differences in legal principles and jurisprudence across Member States make EU-level harmonisation highly complex. The current framework has proven robust and fit for purpose, while further harmonisation risks increasing costs for TSOs and, ultimately, end users.

Question 1.1 – Potential gaps in current framework; including IAs design and scope affecting TSOs, as well as related national law and transport contract provisions extending to shippers

1.1. What are the most important liability related elements that are missing in the current framework, if any? Should possible gaps chiefly be addressed with respect to (a) liabilities among TSOs via IAs review and/or (b) liabilities between TSOs and shippers at the national law and transport contracts and/or (c) conflicts between the two?

ENTSOG considers that the current framework does not lack provisions on liability, either between TSOs or between TSOs and shippers. As noted above, this is substantiated by the fact that, apart from the single case mentioned, ENTSOG and its members have not identified any liability-related disputes, or transport interruptions arising from the existing arrangements.

ENTSOG previously assessed the feasibility of a harmonised General Terms & Conditions (GT&C) template under the CAM NC. As the contracts ruling relations between Parties are of civil rather than an administrative nature, it was and still is impossible to make such harmonization. Please note that as a general rule of the civil relations, it is the prerogative of the parties involved to shape it within scope given by law. The introduction of harmonized rules for liability in IAs would, in fact, mean that liability relations between a shipper and a TSO are defined by agreement between two TSOs. Also, TSOs cannot agree on liability rules that are not aligned with the laws of their respective Member States (MSs). Hence, with neighbouring TSOs governed by different liability regimes under national law, it might be challenging to agree on harmonised liability rules in IAs (as different obligations may apply to each of them).

It is worth noting that TSOs generally lack the capability to adjust off-specification gas once it has entered the system. The main activity performed by TSOs on gas quality management consists of monitoring key gas quality parameters at entry points and usually off spec gas would not be accepted. It is appropriate for shippers, as the owner of the gas commodity itself, to be responsible and liable for the quality of the gas delivered into a

TSO's network,. In addition to this, shippers have the necessary contractual arrangements upstream, whereas TSOs lack contractual relationships with producers. This contractual chain represents the current situation in most MSs and functions effectively. It is also reflected in Chapter 8a of the "General Agreement Concerning The Delivery And Acceptance Of Natural Gas" by EFET, now Energy Traders Europe.

Thus, ENTSOG believes maintaining the current allocation of responsibilities is essential. Altering this balance would diminish incentives for compliance with gas quality specifications, heighten operational risks for TSOs, and could ultimately jeopardise security of supply.

ENTSOG also does not understand ACER's following statement "the absence of specific provisions or general principles effectively reflecting responsibilities and potentially implied liability of involved parties in such cases could affect the non-discriminatory operation of the system and (...) may also have certain local impact on the affected markets." As explained above, the current framework does not demonstrate any lack of provisions for the attribution of responsibilities. More fundamentally, TSO's activities are governed by the overarching EU principle of non-discriminatory access to networks and operations, which TSOs are legally bound to apply, and which is supervised by National regulatory authorities (NRAs) – to ENTSOG's and TSOs' knowledge, there is no evidence of this principle being at risk.

In addition, it is important to recall that while IAs, being contracts between adjacent TSOs, fall within the scope of the INT NC and may therefore legitimately be assessed under this consultation for potential improvements, contractual arrangements between TSOs and shippers do not. As such, these contracts lie outside the scope of the INT NC and should not be considered in the context of this discussion.

Ultimately, the inclusion of liability provisions in the INT NC could lead to increased complexity, and further reflections should be made regarding civil relations that would be governed by two parallel liability regimes: one arising from the INT NC and one from national law.

Question 2 — Is this a concern?

2. Do you know of any circumstance where a liability regime/ provision, or the lack of it related to gas quality, and/or other operational aspects was an issue? Please describe the case and how it ended in terms of liability taken.

ENTSOG is not aware of a significant number of cases in which the absence of liability provisions in IAs related to gas quality or other operational aspects has resulted in unresolved issues or material market impacts. Instances involving cross-border situations regarding gas quality are rare, as illustrated in the gas quality section of INT NC IMR, demonstrating that the current situation is not an issue or a barrier to cross-border trade.

Question 3 — Scope of Potential Amendments on Liabilities relating Gas Quality

3. Regarding the potential treatment of liability in relation to gas quality, what are your views on the following options when/if considering amendments to the Network Code?

ENTSOG considers that no regulatory action is required in this area. In particular, the inclusion of liability provisions in the INT NC is not necessary. Thus, ENTSOG considers that no regulatory action is required in this area and supports option "A".

A) **Do nothing:** Neither the INT NC nor non-binding EU guidelines are appropriate avenues for establishing a TSO liability framework within all EU interconnection agreements. Therefore, no action will be taken.

Please explain your views on this approach.

ENTSOG considers that no regulatory action is required in this area. In particular, the inclusion of liability provisions in the INT NC is not necessary.

As outlined in this consultation document, ACER requested ENTSOG to circulate a questionnaire among its members to gather insights on the implementation of the INT NC and to explore expectations for a potential revision in three key areas: gas quality, liabilities in case of off spec gas quality, and data exchange. Although “liabilities in case of off spec gas quality” are not currently a topic covered by the INT NC, ACER asked ENTSOG to analyse this issue to support a better understanding of existing practices and to consider whether it could be addressed in a future revision.

As result of this analysis, ENTSOG strongly recommends that liability provisions continue to be governed at national level and through the existing contractual arrangements, the status quo is kept and TSOs retain discretion to decide whether to include liability provisions in their IAs with neighbouring TSOs. The signatory parties should retain the ability, within the limits of applicable legislation, to determine which practices are appropriate for developing their contractual arrangements on liability. The significant differences in legal principles and jurisprudence across MSs make EU-level harmonisation highly complex and the inclusion of liability provisions in the INT NC could lead to increased complexity, and reflexions should be made regarding civil relations that would be governed by two parallel liability regimes: one arising from the INT NC and one from national law.

The current framework has demonstrated its robustness and suitability, and further harmonisation would risk imposing additional costs on TSOs and, ultimately, end users.

Already when ENTSOG developed the GT&C template in 2018 – later submitted to ACER for opinion – it was decided to deliberately not include liability provisions, due to the substantial differences in national civil law principles across MSs. This context remains unchanged today and should be valid, all the more since liability for gas quality is only a small part of the topic. The GT&C that are currently used by TSOs have been developed based on years of experience and observing of market functioning. The set up that is now in place has a high degree of harmonisation and enables for optimal balance between harmonisation and regional circumstances/national specificities. ENTSOG maintains its opinion that no changes are needed in this regard and their potential further harmonisation will be highly burdensome with small potential added value for the market. Despite the absence of harmonised rules at EU level, the existing arrangements have consistently proven effective, with liability matters appropriately addressed at national or regional level and currently not being an issue for cross-border trade under the current framework. Regional issues, in particular, should continue to be addressed as local matters. Any attempt to modify national liability frameworks would risk negatively affecting domestic market structures. More importantly, ENTSOG believes that the responsibilities currently assigned to actors in the pan European gas system remain fit for purpose and do not require adaptation.

Thus, as already stated at the beginning, ENTSOG considers that no regulatory action is required in this area and supports option “A”.

B) Standardised EU liability framework: Introduce a standardised, case-based liability framework within all EU interconnection agreements, establishing a formal EU-level framework that governs liabilities at interconnection points. This framework would further define responsibilities between TSOs and should not be diminished by contracts signed between TSOs with shippers.

Please explain your views on the feasibility, advantages, and challenges of this approach, and how it could be implemented.

ENTSOG strongly recommends that liability provisions continue to be governed at national level. Maintaining the status quo and allowing TSOs to retain discretion as to whether to include liability provisions in their IAs with neighbouring TSOs remains the most appropriate approach.

Contractual arrangements regarding liabilities in the EU vary significantly across MSs, as they depend on national rules and civil law principles. Liability regimes are very closely linked to national law and resolutions of NRAs: either general liability principles of civil law or sometimes sector specific legislations. Liability rules and especially possibilities of liability limitations vary from one country to another.

These and other conclusions were reached when ENTSOG developed the GT&C template in 2018, later submitted to ACER for opinion. Then it was deliberately decided not to include liability provisions, due to the substantial differences in national civil law principles across MSs. This context remains unchanged today.

Because liability is not regulated at EU level through the INT NC, TSOs retain discretion to decide whether to include liability provisions in their IAs with neighbouring TSOs. Despite the absence of harmonised rules at EU level, the existing arrangements have consistently proven effective, with liability matters appropriately addressed at national level and currently not being an issue for cross-border trade under the current framework. Regional issues should continue to be addressed locally.

Any attempt to modify national liability frameworks individually by introducing liability rules in the INT NC would risk negatively affecting domestic market structures. More importantly, ENTSOG believes that the responsibilities currently assigned to actors in the pan European gas system remain fit for purpose and do not require adaptation.

The significant differences in legal principles and jurisprudence across MSs make EU-level harmonisation highly complex, while changes to the INT NC can create legal complexities when trying to solve a national issue at EU level.

The current framework has demonstrated its robustness and suitability, any further harmonisation would risk imposing additional costs on TSOs and, ultimately, end users. Additionally, maintaining the current allocation of responsibilities is essential. Altering this balance, for example, by altering shipper liability, would diminish incentives for compliance with gas quality specifications, heighten operational risks for TSOs, and could ultimately jeopardise Security of Supply (SoS).

In fact, it is key to keep acknowledging that varying gas quality requirements across MSs necessitate robust information exchange and monitoring mechanisms. For this system to function effectively, it is crucial that responsibilities along the chain remain appropriately distributed. ENTSOG and the TSOs believe that responsibilities for complying with gas quality requirements and the associated liabilities in cases of off spec gas must continue to be shared between TSOs and shippers. Altering existing responsibility allocations could trigger unforeseen and undesirable impacts on the gas system, whilst at the same time the current responsibility

allocations are not deemed to be an issue today and are not a barrier to cross-border trade. Finally, because TSOs are regulated entities, modification of liability schemes would require compensation through tariff adjustments. Any shift that increases TSO responsibilities or potential liabilities must therefore be reflected in the tariffs charged, which would, in turn, increase costs for end users.

Also, considering that one of the key aims of potential amendments to NCs should be to align with the principles and rules of the gas Regulation (EU) 2024/1789, ENTSOG and the TSOs consider that these already fulfil the requirements related to the transparency of information related to liabilities and no additional provisions are necessary in the INT NC.

Thus, as already stated at the beginning, ENTSOG considers that no regulatory action is required in this area and does not support option “B”.

C) Non-binding guiding EU measures: Adopt non-binding measures (e.g. guidance, best-practice documents, or improved IA templates) to support TSOs in interconnection agreements and enhance clarity and consistency on liability provisions, without introducing formal EU-level amendments to the Network Code.

Please explain your views on the feasibility, advantages, and challenges of this approach, and how it could be implemented.

While this option could potentially offer certain benefits, ENTSOG considers that it would not be feasible. When ENTSOG developed the GT&C template in 2018, subsequently submitted to ACER for opinion, a deliberate decision was taken not to include liability provisions. This was due to the significant differences in national civil law principles across Member States, and a full report can be found on ENTSOG website. As this legal context remains unchanged, it is not expected that a different outcome could realistically be achieved today.

It should further be emphasised that, notwithstanding the absence of harmonised liability rules at EU level, the existing arrangements have consistently proven effective. Liability matters are appropriately addressed at national or regional level and, under current arrangements, do not constitute an issue for cross-border trade.

Thus, as already stated at the beginning, ENTSOG considers that no regulatory action is required in this area and does not support option “C”.

D) Transparency-focused approach: Do not develop an EU liability framework, nor non-binding measures but require TSOs to include greater transparency in interconnection agreements regarding existing liability arrangements between TSOs. Furthermore, and while IAs do not govern contracts between TSOs and shippers, references could be brought into the IA about the terms and responsibilities agreed by TSOs with shippers.

Please explain your views on the feasibility, advantages, and challenges of this approach, and how it could be implemented.

As previously indicated, ENTSOG strongly recommends that liability provisions continue to be governed at the national level. Maintaining the status quo and allowing TSOs to retain discretion as to whether to include liability provisions in their IAs with neighbouring TSOs remains the most appropriate approach.

Moreover, the Gas Regulation already provides the necessary framework to ensure transparency regarding TSO liability. This is set out in point 3 of Annex I to Regulation (EU) 2024/1789.

It should be noted that IAs do not govern contractual relationships between TSOs and shippers, and any references to liability should remain strictly confined to the scope of the contracts in which they are defined and to the responsibilities of the signatory parties. Moving away from this approach would introduce unnecessary complexity and could create confusion or contractual and regulatory incompatibilities.

It is also legitimate to question the usefulness of including an informative section in IAs addressing contractual relationships between other parties. IAs are bilateral contracts between TSOs, and, with the duly noted exceptions set out in the INT NC (most notably the obligation for TSOs to inform network users where they are directly affected, in accordance with Article 4 INT NC), these agreements are not disclosed to entities that are not impacted by them. An informative section, by definition not subject to dispute, does not justify inclusion in provisions subject to consultation with network users, nor does it warrant specific information obligations toward them.

Contractual relationships between TSOs and shippers already exist, and are generally based on GT&C templates, which are typically published and transparent. The contracts between the Parties themselves fall within the realm of the company confidentiality, and their publication may be harmful not only to the functioning of the free market but also from the perspective of potential claims or wrongful actions among market participants.

Finally, it should be recalled that the scope of IAs is limited to interconnection points, whereas contracts between TSOs and shippers relate to activities across the entire TSO system. These distinct contractual layers should not be conflated, as this would risk introducing legal complexity or incompatibility.

Thus, as already stated at the beginning, ENTSG considers that no regulatory action is required in this area and does not support option “D”.

8. Gas quality

8.1 Introduction

Gas quality considerations are primarily addressed in Chapter IV of the INT NC, which establishes a reference framework for managing gas quality (Article 15) and odourisation (Article 19) at IPs in the gas transmission system across the EU. Although not highly prescriptive, the main objective of these provisions is to enhance cooperation and ensure that technical differences in gas quality and odourisation practices do not create barriers to the free flow of gas in the EU.

Complementarily, Article 17 sets out how TSOs may identify the parties that shall be informed about variations in gas quality, enabling end users to align their processes, mitigate potential impacts, and make more informed operational decisions. Distribution system operators (DSOs), storage system operators (SSOs), and directly connected final customers are entitled to receive indicative information regarding such changes.

Overall, Member States and/or TSOs maintain their respective competences in these two areas, with the INT NC generally mandating reinforced cooperation.

Chapter IV further establishes monitoring obligations for TSOs and ENTSOG, aimed at ensuring that gas networks operation remain transparent, resilient, and adaptable. TSOs are required to publish updates on gas quality parameters at their websites at least once per hour during the gas day (Article 16). While Article 18 mandates ENTSOG to publish a long-term gas quality monitoring outlook every two years, providing projections on potential trends and variability over a ten-year horizon (the latest from 2024 can be consulted here: [ENTSOG Gas Quality Outlook](#)).

8.2 Market Status and Identified Issues

When assessing the current market status and potential issues around gas quality, this public consultation focuses on two key questions:

- First, whether the existing rules governing gas quality parameters and ranges at system entry points may hinder cross-border flows or decarbonised gases uptake.
- Second, whether the mechanisms used to identify and supply gas quality-sensitive users — who require clear gas quality information and/or follow stricter gas quality specifications at exit points — should be revised.

The CEN standard EN 16726 provides proposals on both aspects. Accordingly, this section of the public consultation firstly assesses the status of these two aspects, while section 8.4. will seek to determine whether a revised framework is necessary and supported by stakeholders, including possibly amending the code for implementing the CEN standard across EU systems. It should be noted that the scope of the INT NC primarily focuses on IPs and is mostly directed at TSOs, whereas elements of the standard call for a broader framework - at either national or EU level - covering points beyond IPs and entities other than TSOs.

The new CEN standard proposes a twofold distinction for Wobbe Index limits.

1. For gas entries into the system (H-gas) – including biomethane – the standard recommends a broad entry Wobbe Index range of 46.44 MJ/m³ to 54.00 MJ/m³, to allow EU imports from most different supply origins.
 2. For exit points out the system, the standard defines two possible classes of users. Class Specified would be assigned to exit points (or a cluster of exit points) where the Wobbe index bandwidth shall be maintained $\leq 3,7$ MJ/m³, within a total range of 46,44 MJ/m³ to 53,00 MJ/m³ [15°C / 15°C at 1013,25 mbar].
- Alternatively, Class Extended would be assigned to all other exit points (or a cluster of exit points) outside the specification covered by Class Specified. At those points, the recommended entry range of 46.44 MJ/m³ to 54.00 MJ/m³ should be maintained. Allocating Class Extended to exit points (or clusters of exit points) would then require: unbiased assessment of the presence of users' applications sensitive to Wobbe index at the concerned exit point or cluster of exit points and, if any, the implementation of appropriate mitigating measures in cooperation with all parties involved.[4]

Downstream sectors and relevant end-users should be informed about the assigned class of their relevant exit points, as well as about the lower and upper Wobbe index limit values. Exceeding the upper and lower limits of the defined class Wobbe index values (deviations) can occur provided information and action is taken as following:

1. Short-term temporary deviation: Downstream sectors or relevant end-users shall be informed of deviations as soon as information is available. Stakeholders involved should cooperate to identify the appropriate mitigation measures to limit the impact of the temporary deviation.
2. Long-lasting or permanent deviation resulting in a possible class change: Downstream sectors and/or relevant end-users shall be informed of upcoming long lasting or permanent Wobbe index changes. An assessment of the consequences of the change of class in cooperation with the stakeholders involved shall be carried out. The downstream sectors or relevant end-users shall be informed about the assignation of the new class with an appropriate notice period.

ENTSOG report has analysed several key aspects connected to these gas quality aspects, whilst revising the Wobbe Index, oxygen, and sulphur limits currently in place at the different national systems and borders. Furthermore, it examined some of the broader issues the CEN standard aims to resolve, including a) if cross-border flow restrictions had been caused by gas quality divergences in the past and b) the prevailing mechanism used to implement Article 17 regarding information for on short-term gas quality variability, the number of sensitive end-users per system and examples of mechanisms to serve them.

Of the 115 Interconnection Agreements at Interconnection Points covered by the ENTSOG report, 100 specify gas quality ranges. Most IAs have a Wobbe index range within the recommend entry range limits, while 10 IAs exceed the maximum limit and around 20 are below the low- limit specified in the standard. As a general rule systems with higher relative presence of LNG see their maximum limits increase, while IPs with higher relative presence of biomethane see their lower limits decrease, deviations of these conclusions are nevertheless possible. While changes in gas quality ranges can take place across borders, these differences do not create critical problems as identified by ENTSOG.

CEN and gas appliance producers associations, have stressed the need to adhere to narrow range limits at exit points to reduce emissions and avoid efficiency losses and/or appliances malfunctions. On the one hand, sudden quality variations are perceived as more disruptive than static ones, while a gradual WI shift over an extended period is easier to manage, enabling users to adjust equipment. This would underscore the need of for proper access to gas quality data and/or a firmer definition of system user classes. On the other hand, gas producer associations warn that too rigid limits should not suppress domestic gas production, nor hinder the diversity of gas import sources, especially in regions with more variable gas compositions. This can be the case for Central and South-Eastern Europe Energy Connectivity (CESEC) countries, where WI limits tend to differ most from EN 16726, as shown in Figure 1.

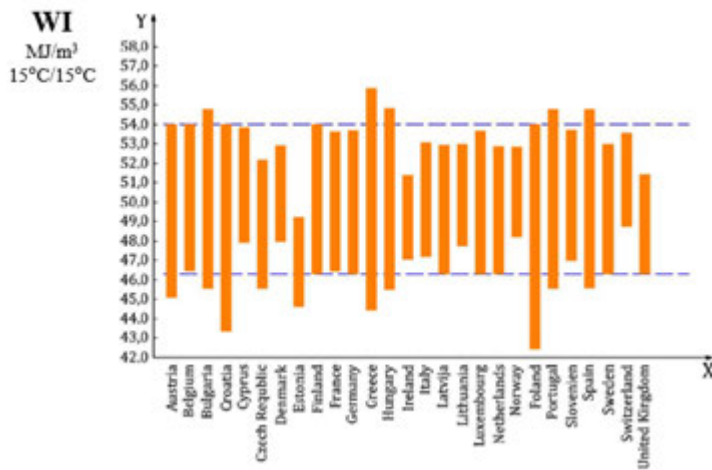


Figure 1 - National WI ranges as in Annex E revised EN16726 (October 2024)

Regarding oxygen, the new CEN standard establishes a 1% concentration limit, with provisions for stricter thresholds (ranging from 0.001% to 1%) if gas flows to sensitive units. The ENTSG report reveals that limits currently set in IAs can be significantly smaller than the ones set in the new standard. Nevertheless, two points are worth considering when making the comparison, these limits were set in line with the old EN16726 – that set a default value of 10ppm – and that the reason for these stricter limits is unknown and might be related to questions of safety or system integrity. Specifically, 50% of surveyed IAs cap oxygen concentration at 100 ppm (0.01%), 24% at 10 ppm (0.001%), and only 21% allow up to 200 ppm (0.02%). More restrictive limits can hinder the adoption and cross-border use of biomethane. Nevertheless, technical solutions can exist; for example, Energinet in Denmark utilizes a double piping system to satisfy the strict 0.001% limit at the German border, using one pipeline for exporting natural gas with limited amount of oxygen, while the other pipeline handles biomethane delivery to Danish consumers in that area.

On sulphur most IAs contain limits equal to the ones set in the CEN standard – 20 and 30 mgS/m³ – there is nevertheless IAs with different limits.

Regarding sensitive users requiring short-term flow quality information under Article 17, most TSOs report having fewer than 10 users receiving gas quality information. Five TSOs report between 10 and 30 users and only one TSO reports to more than 100 users.

It is also worth highlighting that the process to identify users that receive gas quality information is done on a case-by-case analysis. Sensitive users can be identified through public consultations or bilateral discussions at the request of such users.

[4] If a Class Extended allocated to a specific exit point (or to a cluster of exit points) is proven by confirmation with historical data to be a continuously experienced case (see 3.18), then no assessment for the presence of applications sensitive to Wobbe index is needed. This can also apply for exit points (or for a cluster of exit points) having the same application technologies as in another area with continuously experienced gas quality variations (demonstrated by initial assessment).

8.3 Areas for Improvement and Potential Regulatory Options

The integration of the CEN standard EN 16726 is the primary issue of this public consultation. The consultation specifically seeks to determine what kind of approach to foster the standard implementation, is more appropriate.

The CEN standard and gas quality aspects need to be also pondered with the aim to advance the decarbonization of the gas sector. The integration of hydrogen blends and biomethane will result in larger gas quality variations requiring higher system oxygen limits and increased Wobbe index ranges,. These changes might also lead to variation in gas quality, requiring more precise identification and handling of sensitive users. EN 16726:2025 standard aims at providing support for increasing renewable gas adoption, while enhancing security of supply at network entry points and protecting vulnerable consumers from significant Wobbe Index fluctuations at exit points.

While the adoption of the new quality CEN standard is voluntary, it calls for a corresponding national/European framework to support the implementation of the Wobbe index classification, mentioning that the system shall only be applied if the framework exists. This system should cover at least the assessment procedure for identification of applications sensitive to Wobbe index, the assignation and change of classes, related time scales and responsibilities need to be stipulated to enable an implementation of the classification system. In order to pursue this requirement and in what the INT NC is concerned four possible approaches are generalised and put forward:

1. **Do nothing:** Neither the INT NC nor non-binding EU guidelines are appropriate avenues for establishing the European framework required for the Wobbe index classification system. Therefore, no action will be taken to create the framework mandated by the standard.
2. **Non-binding approach:** The gas sector (i.e., relevant associations and NRAs) could develop non-binding EU guidelines outlining key principles and elements that Member States should consider when determining entry ranges at IPs and when establishing mechanisms to identify and supply sensitive users within their national systems. These non-binding guidelines should take the CEN standard as the main reference but can also propose other options.
3. **Roadmap approach:** The non-binding guidelines described in Option 2 could also serve as a basis for establishing CEN standard implementation roadmaps. These roadmaps could be supported and referenced in the INT NC and, over time, provided the proper consultation is done in each individual national system, evolve into a mandatory and harmonised implementation of the standard across national systems.
4. **More prescriptive approach:** The INT NC could be amended to establish an EU regulatory framework ensuring mandatory and harmonised implementation of the standard across national systems (this is, for exit classes, while IPs entry Wobbe Index ranges remain recommendations within the standard). The framework, developed by new INT NC provisions, would define key principles and elements for implementation, including cost distribution, class allocation responsibilities, governance arrangements, and compliance mechanisms.

In regards to the last two options different suggestions on how to integrate the standard in the INT NC are discussed next.

Since the entry-level provisions are non-binding recommendations in the standard itself, ACER suggests that the INT NC amendments are focused on the changes to the exit-level classification system. This could involve, but may not be limited to:

- Defining timelines and stakeholders' responsibilities,
- Procedures for assessing applications sensitive to Wobbe Index changes,
- Assigning and updating classes,
- General principles on cost assignments,
- Establishing mitigation measures [5].

Potential amendments to address those aspects could be the following:

1. **Article 15 of the INT NC** addresses the management of cross-border trade restrictions arising from gas quality differences. Article 21 of the new Gas Regulation (EU) 2024/1789 builds further on this by assigning clearer roles and responsibilities - for example, stipulating that if TSOs fail to agree on a solution, the matter is escalated to the relevant NRAs and possibly to ACER. Hence, Article 15 of the INT NC could be either deleted, or further developed in light of Article 21, by providing more detailed implementation guidance, such as elaborating on the cost-benefit analysis requirements or any further mitigation actions required and its handling in case of deviations.
 2. The CEN standard exit-class considerations could be implemented as referred in a more binding or less binding manner.
- **a more prescriptive approach** would require adding new articles to address aspects related to exit users' classification. For example, a new full article could be included – or alternatively considerations integrated in the current Article 17 – to enforce the assignment of exit classes tied to the CEN standard definitions, including the principles to follow in doing necessary assessments and the procedures to liaise among stakeholders when assigning case classes and information sharing for sensitive users. (e. g., TSOs and/or DSOs shall assign 'Class Specified' or 'Class Extended' to each exit point or a cluster of points in accordance with the definitions given in the CEN standard (...); In doing so, national authorities, TSOs and DSOs should jointly evaluate the technical options of their systems and establish a clear and transparent mechanism for sensitive users to declare their preferences built on (...); Regarding the cost assignment to implement the relevant classes, the following key principles should be maintained (...); Moreover, regarding biomethane, Article 17 could be deepened to deal with identification of oxygen sensitive users. Additionally, Article 16 could be changed to support the information require in case of short term temporary deviation of class and to establish a process of Deviation of Classes in case of long-lasting or permanent deviation of the original class, resulting in a need for a class change.

- **a Roadmap approach**, which would require the introduction of a new article in the INT NC mandating relevant associations and/or NRAs, to develop non-binding EU guidelines outlining key principles and elements that Member States should consider when determining entry ranges at IPs and when establishing mechanisms to identify and supply sensitive users within their national systems. These non-binding guidelines should take the CEN standard as the primary reference while also allowing for alternative implementation options where appropriate. Those non-binding guidelines could become binding after a few years, if, national authorities opt so, also following further consultation, a cost benefit analysis as well as pondering if more challenging issues are identified during the period.

[5] Mitigation measure is defined in the new standard as 'any measure to prevent or reduce significant adverse effects of gas quality changes.'

8.4 Proposed Public Consultation Questions

Question 4 — Assessment of Current Functioning

4. Do you consider that the current practices related to gas quality provisions either related to the current Interconnection Agreements or through other means are fit for purpose?

In your response, please describe, if possible, the relevant framework governing gas quality aspects and explain how it informs your view.

ENTSOG considers that the current practices relating to gas quality provisions defined in the Interconnection Agreements and related contractual provisions, as well as governed by EU and Member States' regulatory frameworks, are generally fit for purpose.

The results of the INT NC IMR confirm that the INT NC framework has enabled TSOs to ensure cross border interoperability, notably by facilitating information exchange on gas quality parameters and handling of cross-border restrictions. These practices have proven effective without affecting cross-border trade.

ENTSOG also remarks that the INT NC does not mandate gas quality provisions to be included in the Interconnection Agreements. Article 3 of the INT NC requires that Interconnection Agreements include measurement principles for gas quantities and quality, but does not prescribe the inclusion of gas quality parameters or specifications as such. While, in practice, the majority of TSOs have voluntarily chosen to include gas quality provisions in their Interconnection Agreements, this reflects national and bilateral operational and regulatory choices rather than an obligation stemming from the INT NC.

Furthermore, ENTSOG underlines that Interconnection Agreements are bilateral agreements concluded between adjacent TSOs. As such, network users are not parties to these agreements and are not directly concerned by whether gas quality specifications are included in Interconnection Agreements or by the specific content of such provisions. Gas quality arrangements affecting network users are instead governed through national regulatory frameworks and contractual relations between TSOs and network users, which fall outside the scope of Interconnection Agreements.

Additionally, ENTSOG remarks that the current EU regulatory framework provides clear rules to ensure transparency, coordination, and handling of gas quality issues. Article 21 of the Gas and Hydrogen Regulation (Regulation (EU) 2024/1789) provides processes and governance to address potential cross border flow

restrictions arising from gas quality differences, which complement the mechanisms set out by the INT NC.

Moreover, the Gas and Hydrogen Regulation has introduced additional transparency requirements for gas quality (TSOs are now mandated to publish on ENTSOG Transparency Platform: Wobbe Index, GCV, Hydrogen, Oxygen, and Methane content) in addition to the existing publication requirements provided by the INT NC and included a mandate for ENTSOG to produce and publish a Gas Quality Monitoring Report. Together they contribute in providing a comprehensive framework for the provision of information on gas quality aspects.

Question 5 — Concerns

5. Do you know of any circumstance where different gas quality requirements hindered cross-border flows? If yes, please provide more details? What solutions solved/could effectively solve such matters?

Based on the findings of the latest INT NC IMR, ENTSOG considers that current gas quality arrangements are generally fit for purpose and have not constituted a structural barrier to cross border gas flows.

To ENTSOG's knowledge there haven't been structural cases where different gas quality requirements have significantly hindered cross-border flows. In a limited number of situations involving non-compliant gas quality (e.g. related to dew point or dust), operational measures were applied to restore compliance, such as temporary flow reductions and gas commingling, in cooperation with the parties involved. These situations were resolved without disputes or lasting impacts on cross-border transport.

The INT NC IMR documents provide concrete examples, including explanations of the circumstances and the mitigation measures applied (see chapter 5.4 of ENTSOG Interoperability Network Code Implementation Monitoring Report 2025).

It should also be noted that, at EU level, the mechanisms provided for in Article 15 of the INT NC and Article 21 of the Gas and Hydrogen Regulation offer the necessary means to address diverging gas quality specifications that may arise at cross border points. To the knowledge of ENTSOG and the TSOs, further escalation of cases to the concerned NRAs or to ACER, according to the procedures indicated in both articles, has never occurred, which demonstrates that TSOs have been able to resolve gas quality issues at cross border points without resorting to these additional mechanisms available to them. These cases demonstrate that the existing mechanisms foreseen under the INT NC and the Regulation are suitable for addressing gas quality related challenges at interconnection points when arising, without the need for additional prescriptive regulatory intervention.

Question 6 – Decarbonisation

6. With the progressive growth of low-carbon gases and hydrogen blends, do you consider the current practices related to gas quality remain effective? Would you expect rising concerns in respect to cross-border flows impediments or biomethane injections related to gas quality, and would you have specific suggestions to address those?

ENTSOG considers current gas quality practices effective in the context of the progressive growth of low carbon gases, including biomethane and limited hydrogen blending. The Gas and Hydrogen Regulation, together with the INT NC, already provides the necessary framework to ensure that TSOs offer the market sufficient transparency, coordination, and cooperation mechanisms to prevent restrictions to cross-border gas

flows resulting from gas quality differences at interconnection points, as set out in Article 21 of the Regulation. Nevertheless, ENTSOG recognises that increased injections of biomethane and hydrogen blends may require enhanced coordination and information transparency, particularly at national level. Potential challenges related to gas quality in such contexts are primarily linked to national system configurations, downstream sensitivities and local injection patterns, rather than to cross border interoperability at interconnection points.

ENTSOG supports complementary tools, such as non-binding guidance and EU-Member States coordination, to address emerging challenges without revising the core INT NC framework.

Question 7 — Fostering the implementation of the CEN standard

This block of 5 questions tests the views about the CEN standard EN 16726 requiring a prescriptive implementation grounded on a defined EU-wide regulatory framework or instead promoting a non-binding approach, possibly followed by a Roadmap, as discussed in Section 8.3.

7.1 In relation to the CEN standard EN 16726, do you support i. do nothing approach, ii. a non-binding approach or iii. a roadmap approach or iv. a prescriptive implementation approach – as discussed in Section 8.3.

ENTSOG acknowledges the importance of EN 16726 as a technical reference supporting harmonisation of gas quality handling across EU Member States. However, ENTSOG notes that the purpose of the present consultation is to assess whether a revision of the INT NC is needed, rather than to determine the most appropriate regulatory instrument for implementing the CEN standard across national systems.

Against this background, ENTSOG considers that the implementation of the CEN standard should remain, as is currently the case, within the responsibility of Member States, in line with the principles stated in the Regulation (EU) 2024/1789, which explicitly preserve Member States flexibility in the application of gas quality standards within national gas systems. For this reason, ENTSOG does not consider it necessary to establish prescriptive EU measures to implement the standards and, instead, considers that a “do nothing” approach is more appropriate in this area.

This reasoning also applies to interconnection points. Existing instruments (such as Articles 15 of the INT NC and 21 of the Gas and Hydrogen Regulation, as well as transparency obligations) have proven effective in addressing gas quality handling issues cross-border.

ENTSOG recognises that the implementation of a Wobbe Index class system at exit points would require an appropriate enabling framework. In this regard, ENTSOG supports that such a framework necessary is implemented at MSs level, by the countries that decide to implement it, as it would constitute a more efficient and fit-for-purpose solution than including it in the INT NC. The INT NC should not be amended for this purpose. ENTSOG believes that the development of non-binding implementation guidelines as an instrument to facilitate implementation at national level, would avoid undermining Member States' competence or introducing rigid EU level requirements. Such guidelines can support the interpretation of the standard while allowing sufficient flexibility in national application. ENTSOG notes that preparatory work in this direction is already underway throughout the establishment of an internal Wobbe Index Task Force which is currently developing implementation guidance at the TSO level.

7.2 What are the reasons behind your preference?

The concern about introducing a prescriptive implementation of the standard is supported by considerations regarding the risks associated with potentially significant implementation costs and uncertainty about technical or operational consequences.

In ENTSG's view, EU-level non-binding guidelines would provide a practical and flexible toolbox for MSs choosing to implement EN 16726, while remaining aligned with national system specificities. Such guidance could:

- preserve Member States' autonomy in gas quality matters, as mandated by the Gas and Hydrogen Regulation, while offering clear and consistent recommendations for the implementation of WI classes,
- strengthen an already robust framework without imposing costly, and unnecessary or rigid EU-wide regulatory requirements,
- facilitate transparency and stakeholder engagement, while accounting for the needs of sensitive users,
- avoid introducing rigid regulatory layers where no market failure has been identified.

7.3 Do you believe that the INT NC is the right venue for a prescriptive action?

ENTSG does not consider the INT NC to be the appropriate instrument for prescriptive action on the implementation of EN 16726. As acknowledged in this consultation document, the scope of the INT NC primarily focuses on interconnection points and is primarily directed at TSOs, while the WI classification system for exit points is applicable also to distribution systems.

Prescriptive rules on Wobbe Index classification at exit points and sensitive user handling would therefore go beyond the intended scope and purpose of the INT NC and would require different legal instruments at national or EU level.

Specifically, with regard to the ACER proposal to possibly amend Article 16 of the INT NC to support information requirements in case of short-term deviations of Wobbe Index classes or to establish procedures for class changes following long-lasting or permanent deviations, such an approach would effectively extend the scope of that article, and thus the INT NC, beyond its current remit, which is limited to interconnection points.

ENTSG acknowledges that Article 17 of the INT NC could, in principle, be perceived as a potential option for introducing a reference to the Wobbe Index classification system, given its focus on gas quality information and communication towards downstream stakeholders. However, further consideration is required regarding the scope of the Wobbe Index class system which would require allocation of tasks and responsibilities among TSOs, DSOs and other stakeholders, which currently falls outside the scope of the INT NC.

Even if a reference to the Wobbe Index classification system were to be included in Article 17, the detailed procedures for assigning exit classes, managing deviations, and coordinating, with affected stakeholders would inevitably need to be defined at national level, in order to reflect national system specificities, network configurations, and regulatory frameworks. Such elements cannot be effectively standardised through the INT NC alone without extending its scope beyond its intended purpose and without additional national or European prescriptions.

Additionally, any amendment to Article 17 to enforce the implementation of WI exit classes could result in TSOs having to install additional costly measurement, monitoring, or forecasting equipment, which goes against the guiding principle of the current Article 17. Given the voluntary nature of the CEN standard EN 16726, making the Wobbe Index classification system prescriptive through the INT NC would contradict the flexible approach set out in the Gas and Hydrogen Regulation, which explicitly preserves Member States' ability to implement gas quality standards within their national systems.

Finally, in the consultation text, reference is made to the current Article 17 regarding sensitive users requiring short-term flow quality information. It should be clarified that Article 17 does not define an obligation to provide information to sensitive users, neither a definition of what constitutes a sensitive user. Therefore, the statement is factually incorrect.

The INT NC does not prescribe procedures for exit point gas quality management or for the identification of sensitive users, reflecting the fact that such arrangements concern TSO-end user interfaces and national system management, rather than cross-border interoperability at interconnection points. Although the CEN standard indicates that in case of assigning a class extended to specific users an assessment of users sensitive to Wobbe Index variations shall be performed, it does not provide further guidance on how to perform this assessment. These matters should be left to TSOs, DSOs and competent national authorities to address in a manner that reflects national specificities and downstream network characteristics.

ENTSOG and its members are currently working on laying the foundations to enable Member States in defining their technical procedures and frameworks.

7.4 If you would opt for a non-binding approach possibly resulting in a roadmap – which would be referenced in the INT NC? Please check 4 options below.

7.4. a) With whom do you think the decision to make any implementation mandatory should hold, the national regulatory authority and/or the national ministry – both conducting a public consultation -, an independent impact assessment, other

A decision on making any implementation mandatory should primarily rest within the competence of national authorities, in accordance with the principle of Member States decision making power on gas quality matters defined in the Regulation 2024/1789. Any such decision should also take into account economic considerations, impact assessments, system users needs, and be carried out in consultation with relevant stakeholders.

7.4. b) What is the timeline that you consider could be established to make any implementation mandatory?

Given that the revised standard EN 16726 has not yet been widely adopted at national level, no short-term mandatory timeline should be envisaged. A realistic transition period should be considered to allow for national regulatory and operational adaptation Any move towards further mandatory implementation should take into account experience gained from operational and commercial practices, as well as demonstrated, evidence-based need.

7.4.c) Would you be concerned if deviations were taking place across national systems in the establishment of exit classes? If yes, what deviations seem to you to be of concern and how would you mitigate those?

ENTSOG does not identify concerns differences across Member States in the implementation of exit classes to be a concern where Member States decide to implement the standard, provided that such differences remain consistent with what is indicated in the EN 16726 standard. Gas transmission and distribution systems across Europe differ significantly in terms of network configuration, gas supply sources, operational tools, data availability, and the types of end-users served. As a consequence, different technical and operational solutions may be required to implement Wobbe Index exit classes effectively at the national level. Given that the

stakeholders involved (e.g. TSOs, DSOs, end users) are subject to national specificities and operational needs, an approach that takes these requirements into account would lead to a more efficient outcome, rather than imposing rigid EU-level requirements on TSOs and end users.

7.5 How do you perceive the consequences to end-users in the short and long term if a well-defined regulatory framework, either created by amending the INT NC or by other means, for the identification of exit classes as well as other limits, namely for oxygen is not implemented?

The absence of a regulatory framework is not expected to have significant consequences for end-users, particularly with regard to Wobbe Index classes and oxygen limits. Indeed, the gas delivered to end-users would remain compliant with existing national specifications, and the system would continue to operate under the existing configuration and practices, which have so far ensured a high level of operational reliability.

ENTSOG notes that the full extent of the risks associated with introducing prescriptive regulatory changes, particularly through amendments to the INT NC, is not currently known. Their technical feasibility has not been demonstrated and the potential impacts on gas system operation have not been fully assessed. Moreover, the overall societal costs of implementing such changes, including potential impacts on network tariffs, have not been evaluated.

ENTSOG nonetheless considers that the implementation of the CEN standard should be, as today, within the responsibility of Member States, in line with the principles stated in the Regulation (EU) 2024/1789, which explicitly preserve Member States flexibility in the application of gas quality standards within national gas systems. For this reason, ENTSOG does not consider it necessary to establish prescriptive EU measures for the implementation of the standard. Such an approach would result in higher costs, increased technical and operational uncertainty, increased legal, regulatory, and contractual complexity, as well as heightened risks to the EU's security of supply. This reasoning also applies to the risks associated with any changes to the framework at interconnection points.

ENTSOG recognises that the implementation of a Wobbe Index class system at exit points would need an enabling framework. In this regard, ENTSOG considers that the necessary framework is implemented at Member States level, by those countries that decide to do so, as it would constitute a more efficient and fit-for-purpose solution than including them in the INT NC. The INT NC should therefore not be amended for this purpose. ENTSOG believes that the development of non-binding implementation guidelines, as an instrument to facilitate implementation at national level, would avoid undermining Member States' competence or introducing rigid EU level requirements. Such guidelines can support the consistent interpretation of the standard while allowing sufficient flexibility in their national application.

With regard to the establishment of a prescriptive legislative framework for oxygen limits, as evidenced by the ENTSOG INT NC Implementation Monitoring Report, most of the current oxygen limits specified in the analysed IAs fall within the limits indicated in the revised standard EN 16726 (i.e. between a 1% - 0,001% range). It should be noted that these limits, indicated in the IAs, apply to cross border interconnections and not to connections with other points, for example, such as end users or DSOs.

The CEN standard indicates that a possible future revision of oxygen limits may be considered in response to increasing levels of biomethane injection. Should such revision take place, adjustments to oxygen limits, similarly to other gas quality parameters in the EN 16726, would follow the established standardisation process and be adopted and implemented by Member States via their national standardisation frameworks. Furthermore, it is worth mentioning that additional work at the EU level is ongoing within CEN to develop a technical report addressing oxygen management aspects in gas networks, which is intended to provide additional solutions to handle oxygen and other trace components in the gas grids.

Prescriptive limits on gas quality parameters, being oxygen or others, should therefore not be established under the INT NC. Such limits are better handled via national frameworks or contractual arrangements between TSOs and network users, to reflect specific network topologies, operational conditions, and downstream system characteristics.

Finally, ENTSG notes that no negative consequences for end users have been identified as a result of the absence of a prescriptive EU framework governing oxygen limits and other trace components. TSOs already work closely and proactively with end users to identify and implement appropriate solutions for possible gas quality-related issues using existing regulatory and contractual tools. Whether prescriptive rules are in place or not does not affect TSOs' willingness or ability to cooperate with end users.

For these reasons, ENTSG considers that prescriptive EU-level rules may not adequately reflect specific characteristics of national systems and related national standards and regulations. ENTSG considers that any further technical standardisation should be left to Member States, preserving the necessary flexibility at national level and avoiding unnecessary regulatory complexity.

Question 8 – Application of EN 16726 – key elements and principles

This block of questions revolves around the key principles that will need to be defined for implementing the CEN standard exit classes classification, either in a more prescriptive or in a non-binding approach. Those principles would relate to aspects such as e.g., distribution of costs, governance aspects, responsibilities and obligations of TSOs, NRAs and final users.

8.1 Are you aware of the specific impact that the adoption of the CEN standard has in the Member State in which you are located? For example, if this might be implemented into National Law? Please describe your view.

No opinion.

8.2 Would you have proposals / how would you plan to proceed in the identification and assignment of exit classes within your purview of future activities? Please explain the changes you could expect in your specific role in your answer.

ENTSG considers that the framework needed for the identification and assignment of WI exit classes should be in place at national level, supported by EU non-binding implementation guidelines.

As indicated in the CEN standard, the assignation of Wobbe Index classes at exit points could be based on either using historical Wobbe Index data (normally available for most TSOs), or on the assessment of possible future system evolutions based on known system developments. As a first step prior to the assignation of classes, TSOs would anticipate the time, resources and tools needed to initiate the task, including possible investments in data management, IT systems or measurement equipment where required, and allowing sufficient lead time for dialogue with the respective NRA. Once the NRAs approves the possible costs related to the investment needed to implement such tools, TSOs would have to set up the systems to gather and consolidate information from upstream parties, including historical Wobbe Index data and any known or expected developments that could affect gas quality at exit points. In parallel, TSOs would engage with DSOs

to ensure alignment and coordination, particularly where downstream networks are involved and where information availability is critical for consistent implementation. Ahead of the actual assignment, TSOs would inform end users that Wobbe Index classes will be established, and consult them to assess whether receiving Wobbe Index class information is relevant for their installations. Finally, TSOs would carry out the Wobbe Index assessment at relevant exit points, and proceed with assignment of the respective Wobbe Index classes. In any case, Wobbe Index classes should be regarded as informative tools, not as guarantee of future gas quality.

In this context, ENTSOG can act as a facilitator for high-level coordination and dialogue at EU level, including by supporting engagement across TSOs and with other stakeholders such as DSOs, national authorities, end-users, industry associations and ACER. This work could eventually contribute to the establishment of a stakeholder platform to support alignment and coordination across different national implementations, without introducing prescriptive EU-wide requirements. ENTSOG's role could be to support coordination, knowledge-sharing and the development of practical guidance, complementing national processes and contributing to an effective and proportionate implementation of the Wobbe Index classification system.

8.3 Do you have any reflections on the potential cost allocation and cost distribution considerations that the assignment of classes might entail? For example, what would be your view as regards of applying differentiated exit fees among users based on differences in assigned gas quality classes?

ENTSOG considers that the procedures to assign Wobbe Index classes would entail additional costs for TSOs (and, to a certain extent also for DSOs), in order to implement possible adaptations of IT and operational processes. A proper assessment of costs arising from the installation of new measuring equipment and tools should be carried out, with involvement of national authorities. Any additional costs incurred by the TSOs as a result of implementing Wobbe Index classification schemes should be recognised by the respective national regulatory authorities.

Regarding the implementation of appropriate mitigation measures to user's applications sensitive to Wobbe Index I, as foreseen by the class extended, NRAs would therefore be ultimately responsible for deciding on cost allocation methodologies, and a decision would require proper economic and technical assessments, including consideration of cost effectiveness, proportionality and potential impacts on different categories of network users.

8.4 How should the interactions between the different players (TSO, DSOs, shippers, end-users) proceed in respect to the identification of classes?

TSO-DSO cooperation is essential, particularly where reverse flows exist, as well as communication exchange with end-users for the purpose of identifying sensitive users. Preliminary work carried out by ENTSOG and its members to develop possible implementation solutions for the Wobbe Index classes highlights the need for coordinated information exchange, aligned timelines and communication with end-users regarding Wobbe Index classes assignment, deviations and changes over time.

8.5 Please provide any additional information and views that you think relevant when considering mechanisms and rationale to implement a system of exit classes.

ENTSOG considers that the implementation of a system of exit classes should be approached as an information tool aimed at supporting end users' needs in relation to gas quality parameters information and their variability, rather than a prescriptive obligation.

The CEN standard EN 16726 mentions that such a system shall apply if the corresponding national/ European

framework is available to support it. This confirms the voluntary nature of the standard and the need for enabling regulatory arrangements to implement it.

ENTSOG reiterates its view that the implementation of the Wobbe Index classification system requires careful consideration of national circumstances, including network configurations, end users' needs and existing gas quality management practices.

Question 9 – Other gas quality topics

9. Are there gas quality improvements, non-related to the CEN standard that you would foresee, as relevant? Which ones? Please argue your point. They can also revolve around topics not currently covered in the INT NC.

ENTSOG would like to raise some remarks on other aspects of this public consultation, specifically with reference to the proposed amendments to Articles 15 as outlined in Chapter 8.3.

ENTSOG recalls that gas quality provisions under the INT NC are designed to facilitate cross-border interoperability, and are primarily concerned with the operation of transmission systems in relation to interconnection points. Article 15 addresses the handling of cross border trade restrictions resulting from gas quality differences. In this context, the Article establishes a governance process whereby, in the event of disagreement, the concerned transmission system operators consult their respective NRAs.

Similarly, Article 21 of Regulation (EU) 2024/1789 sets out a framework for cross border coordination with regard to gas quality in the natural gas system. It requires TSOs to cooperate in order to avoid restrictions to cross border gas flows due to gas quality differences at interconnection points, taking into account the characteristics of final customers' installations. Where a restriction to cross-border flows due to gas quality differences cannot be avoided by the TSOs concerned in their standard operations, they are required to inform the relevant NRAs without delay, which shall then coordinate and, where necessary, escalate the matter to ACER. Article 21 therefore also provides an overarching framework on governance arrangements for addressing cross border gas quality related flow restrictions.

From this perspective, ENTSOG does not identify a clear need to further expand or detail governance rules within the INT NC for situations that are already addressed by both Article 15 of the INT NC and Article 21 of the Gas Regulation, as far as interconnection points and cross-border transmission operations are concerned.

9. Data exchange

9.1 Introduction

Chapter V of the interoperability network code establishes the framework for operational-data exchange within the European gas market. These provisions are designed to fulfil data exchange requirements between TSOs and their counterparties, which the Regulation defines as network users active either at interconnection points or at both interconnection points and virtual trading points. By harmonizing the way information is shared, the code helps to facilitate smoother cross-border transmission activities.

The INT NC mandates the use of common data exchange solutions that standardize the protocols, data formats, and the network (universally specified as the internet). Depending on the specific operational requirements, operators may implement one or more of three distinct types of data exchange options described in Article 21 of the code.

1. The first is document-based data exchange, where data is wrapped into a file and automatically exchanged between the respective IT systems.
2. The second is integrated data exchange, which allows data to be exchanged directly between two applications on their respective IT systems.
3. The third option is interactive data exchange, where data is exchanged interactively through a web application via a browser.

To maintain a high degree of interoperability, the document-based and integrated exchanges rely on standardized formats such as Edig@s-XML, or an equivalent data format published by ENTSOG. While protocols for document based, integrated and interactive data exchange are ENTSOG AS4 Profile, HTTP/S-SOAP and HTTP/S respectively.

The code also mandates stringent security and availability measures through Article 22. Operators and counterparties must secure communication chains using encryption and signatures, proactively prevent unauthorized IT access, and promptly report any breaches. Additionally, transmission system operators must guarantee system availability by preventing single points of failure and minimizing maintenance downtime.

Finally, while these common solutions are the standard, existing legacy data exchange systems may be retained if they meet the new security requirements, undergo network user consultation, and receive national regulatory approval as described in Article 23. In that regard, and to ensure long-term adaptability, ENTSOG is tasked with developing Common Network Operation Tools (CNOTs) [6] and managing necessary technological updates (through Article 24 of the code). Any future changes to these data exchange solutions must be driven by transparent processes, including cost-benefit analyses and comprehensive public consultations.

[6] CNOTs (Common Network Operation Tools) are technical standards developed by ENTSOG (European Network of Transmission System Operators for Gas) to ensure harmonized data exchange between gas transmission system operators (TSOs) and their counterparties. They define the technical, operational, and communication rules necessary to implement European network codes, specifically regarding data formats and protocols.

9.2 Market status and Identified issues

ENTSOG reports that data-exchange processes remain mature, fully interoperable, and compliant with the INT NC. The dominant setup across the sector is document-based data exchange, using Edig@s 5.1 as the main data format and AS4 as the communication protocol. However, a variety of alternative options remain in use across the industry.

Document-based exchange is clearly the most prevalent option, utilized by 80% of TSOs. Meanwhile, integrated data exchange is used by 25% of TSOs, and interactive data exchange by 20%.

For communication protocols, 85% of TSOs use the ENTSOG AS4 profile. Most TSOs currently rely on version 3.6 while version 4.0 is already available [7], while 5% still use AS2, which is now relegated to older, outlier implementations. To address this, the report states that there will be substantial, ongoing activity and support over the next few years by ENTSOG and EASEE-gas to facilitate the TSOs' migration to the latest ENTSOG AS4 version 4.0.

Finally, concerning data formats, TSOs frequently apply different Edig@s versions across various connections explaining the statistics overlap of the responses, which produce the following results: 90% of TSOs employ Edig@s XML 5.1, and 10% use Edig@s XML 6.1. Additionally, 35% of TSOs still utilize Edig@s 4, a legacy message format.

Even without full harmonization, the lack of uniformity is not perceived a barrier to reliable cross-border data exchange. It is also worth noting that the current application of CNOTs provides guidance on data exchange topics. While 70% of TSOs consider this current guidance sufficient, 20% believe it could be more specific to foster greater harmonization, something that would be valuable.

While the TSOs consensus is that no substantial changes are required, and while various market participants tend to agree that current standardization and guidance are sufficient, some stakeholders have also flagged that the actual adherence to common / primary solutions could be improved. This is because the alternative solutions defined in the CNOTs - the optional data exchange solutions in column 11 in Table 1 - might be preferred over the implementation of the primary solution - the common data exchange solution column 9 in Table 1. Nevertheless, it is worth pointing out that no evidence exists that this behaviour has caused inefficiencies and/or market harm, so further action would require a cost-benefit analyses.

Additionally, another topic that warrants amendment is extending the network code's data exchange rules to capacity booking platforms and clarifying how they apply to the virtual trading point operator throughout the relevant articles. The later has already been added into the network code remit, based on the solution for FUNC issues 01/2018, 02/2018 and 06/2018. The addition of booking platforms was also previously discussed into the FUNC case on Missing Harmonisation on interfaces on capacity platforms (01/2019) and prompted the review of the CNOTs table to include booking platforms. However, the amendment of the network code is missing, meaning that operators can still use their reference tools without the mandate from Union law. (See FUNC cases [01/2018](#), [02/2018](#), [06/2018](#) and [01/2019](#) links, and the update CNOT table below).

Table 1 CNOTs table (For better visibility please check this [link](#))

Process Area Value	BS	Document Chapter	Document Line Number	Information Flow	From Party Role Value	To Party Role Value	Confidentiality Level	Common Data Exchange Solution	Date of Publication	Optional Data Exchange Solution
Capacity Trading Processes	CAP001-21_BS5_CMA-CMP_V03_MC_INT_Approved	3.3.1.2	513	Network User Registration to Capacity Platform	Network User	Transmission System Operator	Private			Recommendation
		3.3.1.3	513	Network User Registration to Capacity Platform	Network User	Transmission System Operator	Private			Recommendation
		3.3.1.4	520	Approved Network Users	Capacity Platform Responsible	Registered Network User	Private		1/1/2016	Recommendation
		3.3.1.5	530	Supplier Capacity Rights	Registered Network User	Capacity Platform Responsible	Private			Recommendation
		3.3.1.6	544	Offered Capacity	Capacity Platform Responsible	Registered Network User	Public	Document Based	16/06/2021	Interaction
		3.3.1.7	574	Capacity Bid	Registered Network User	Capacity Platform Responsible	Private	Document Based	16/06/2021	Interaction
		3.3.1.8	581	Allocated Capacity	Capacity Platform Responsible	Registered Network User	Private	Document Based	16/06/2021	Interaction
		3.3.1.11	601	Aggregated Auction Results	Capacity Platform Responsible	Registered Network User	Public	Document Based	1/1/2016	Document Based
		3.3.1.12	605	Aggregated Auction Results	Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.3.1.14	624	Reverse Auction Bid	Registered Network User	Capacity Platform Responsible	Private	Document Based	1/1/2016	Document Based
		3.3.1.16	623	Allocate Reverse Auction Results	Capacity Platform Responsible	Registered Network User	Private	Document Based	1/1/2016	Document Based
		3.3.2	645	Secondary Market Sales	Registered Network User	Transmission System Operator	Private	Document Based	1/1/2016	Document Based
Nomination and Matching Processes	BAL003-16BS2_BS5 on nominations_V03_MC_INT_Approved	3.3.3.3	299	Nomination Authorisation	Registered Network User	Transmission System Operator	Private			Recommendation
		3.4.1	270	Nomination	Registered Network User	Matching/Transmission System Operator	Private	Document Based	1/1/2016	Interaction
		3.4.1	271	Forward single order nomination	Matching/Transmission System Operator	Matching/Transmission System Operator	Private	Document Based	1/1/2016	Interaction
		3.4.1	384	Processed Quantities	Matching/Transmission System Operator	Matching/Transmission System Operator	Private	Document Based	1/1/2016	Interaction
		3.4.1	387	Confirmation Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	387	Confirmation Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	420	Information Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	420	Information Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	420	Information Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	420	Information Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	420	Information Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction
		3.4.1	420	Information Notice	Matching/Transmission System Operator	Registered Network User	Private	Document Based	1/1/2016	Interaction

[7] The observation that many TSOs still use AS4 v3.6 does not indicate non-compliance. Version 4.0 is recent, depends on vendor readiness, certificate lifecycle constraints and ETSI library availability of EdDSA.

9.3 Areas for Improvement and Potential Regulatory Options

The discussions and status described in the previous chapter leads ACER to identify the following possible areas of improvement.

1. The introduction of capacity booking platforms as points where the INT NC defined protocols should be implemented and used by network users, as mentioned in article 20. This addition would lead to the amendment of articles 20 and 23. Where the application would be extended to be “between transmission system operators and from transmission system operators, VTP Operators or Capacity Booking Platforms to their counterparties shall be fulfilled by common data exchange solutions set out in Article 21.
2. Article 24 could be modified to a stricter and more binding wording, mentioning that the CNOTs “shall” also include business requirement specifications, release management and implementation guidelines, contributing in this way to further harmonize the common solutions used.

9.4 Proposed Public Consultation Questions

Question 10 — Assessment of Current Functioning

10. Do you consider the current data exchange provisions defined in the code fit for purpose? If not, where do you see potential for enhancing operation?

ENTSOG considers the current data exchange provisions as defined in the code are fit for purpose. This is demonstrated in functional operational activities and by the absence of any systemic failure of the market as a result of a lack of provisions or refinement in the code.

Introducing changes, whether by adding, removing, or increasing the prescriptiveness of data exchange provisions carries inherent risks for market participants. More stringent or restrictive requirements may lead to unintended knock-on effects across systems and processes, potentially without delivering measurable or auditable benefits. In addition, such changes could trigger migration costs and resource reallocations, divert focus from higher-priority initiatives and ongoing operational activities and affect market stability.

Maintaining regulatory stability in this area is essential to allow market participants to focus on ongoing system operational challenges, whilst continuing to deliver efficient and interoperable data exchange across their

market. In conclusion, ENTSOG considers that the data exchange provisions of the INT NC are fit for purpose and do not require revision at this stage. The existing framework has proven robust, flexible and capable of accommodating technological evolution through established mechanisms without disrupting market stability.

Question 11 — Value of further harmonisation

This block of questions revolves around the need and benefits of reducing the optionality in the code data exchange solutions, and enforcing the harmonisation of more common practices:

11.1 Do you believe that the optional data-type exchange solutions in the CNOTs are being preferred in excess over the common data exchange solution? Is this an issue that should be tackled to enable further harmonization? If tackled, what do you see could be the costs and gains?

ENTSOG does not see any evidence that optional data exchange solutions defined in the common network operation tools (CNOTs) are being used in preference to the common data exchange solutions in a way that undermines interoperability or affects market operations.

The IMR results referenced in this consultation, Chapter 9.2, demonstrate that the primary common solutions (under the INT NC and the Common data exchange solution table aka CDES table) remain the predominant data exchange solutions, with around 85% of TSOs using AS4 and Edig@s. No trend has been identified suggesting substitution of common solutions by optional ones affecting cross-border interoperability.

The availability of optional data exchange solutions reflects a deliberate and proportionate design choice, allowing TSOs and counterparties to accommodate different operational contexts, legacy systems and cost considerations whilst remaining within the current framework.

ENTSOG internal TSO data exchange surveys further show that TSOs often offer multiple solutions in parallel. In practice, this is not a choice between one solution or another but rather the simultaneous availability of several options to best suit counterparties' needs and market context, without compromising harmonisation.

Given the absence of identified interoperability issues, ENTSOG does not consider this an issue requiring regulatory revision. Restricting optional solutions could introduce disproportionate migration costs and operational risks, while the potential gains in harmonisation appear limited.

11.2 What do you see could be the potential gains from a further harmonization of the types of data exchange solutions? For example, would you see value in reducing the types of data exchange solutions – e.g., to only document based and interactive data exchange solutions?

Whilst harmonisation is an important principle, it should not be pursued as an objective in itself. Any further harmonisation of data exchange solution types should be supported by a clear business, operational, legal, or security rationale and by evidence that the current framework is no longer adequate.

ENTSOG does not see any such evidence at present. Reducing the number of data exchange solution types could risk constraining Electronic data interchange (EDI) operational flexibility and imposing additional implementation and migration costs, without a clear demonstration of commensurate gains. The current coexistence of document based, integrated and interactive data exchange solutions has not impeded interoperability, efficiency, or market functioning.

ENTSOG's experience shows that TSOs often offer multiple solution types in parallel, allowing counterparties

of different sizes and technical maturity to select the most appropriate option. This approach has delivered pragmatic harmonisation without adverse effects and has supported participation across a range of market participants at different levels of IT maturity and needs. Additionally, the application of optional data exchange models can be used as viable back-up solutions if the primary fails.

Any perceived gains from further harmonisation should be carefully weighed against the loss of proportionality and flexibility, the practical needs of different market participants and the costs and risks associated with forced transitions away from well-functioning solutions.

It is also noted that this question suggests the possible removal of the integrated data exchange paradigm. Whilst underlying technologies may naturally evolve over time, such evolution can be accommodated within the existing INT NC framework. The integrated data exchange solution defined under Article 21 preserves the use of Edig@s XML as the payload format, thereby maintaining semantic and syntactical interoperability irrespective of transport or integration model.

11.3 Do you consider that the harmonisation levels for data protocols and data formats versions should be enhanced? What do you see could be the potential gains and costs from a further harmonization of these solutions?

ENTSOG considers that the current levels of harmonisation for data protocols and data formats, including approaches to version adoption, are adequate, effective, and proportionate and reflect the current state of implementation and maturity across the market.

Edig@s XML data formats (primarily 5.1) and the ENTSOG AS4 v3.6 profile for communication are very widely adopted by the European gas community and continue to successfully enable secure and interoperable data exchange across the market. This demonstrates that the framework delivers harmonisation where it matters most, namely, at the level of semantic and syntactical interoperability.

ENTSOG's operational and monitoring experience has not identified material deficiencies or interoperability issues that would justify further harmonisation of protocol or data format versions at regulatory level. Limited variation in version deployment has been managed without adverse impact and reflects a pragmatic balance between standardisation, technological evolution and proportionality. In particular, versioning inherently requires a degree of flexibility to accommodate different investment cycles and IT landscapes to allow orderly migration and coexistence during transition periods. EASEE-gas, for example, maintain two versions of Edig@s for a minimum period of 4 years to facilitate version migration and avoids unnecessary disruption to established operational processes.

Attempting to mandate tighter alignment on versions at regulatory level could result in significant migration and compliance costs and increased operational risk during transitions, without clear evidence of commensurate gains.

Where new developments have been necessary, notably for ENTSOG's AS4 v4 profile, which is a security driven upgrade, these issues are being addressed within the existing framework through governed CNOT updates and structured migration paths, rather than through changes to the Network Code itself. This approach preserves interoperability whilst allowing controlled and predictable evolution.

ENTSOG considers that version harmonisation is best managed through the existing CNOT governance and implementation mechanisms rather than through more prescriptive regulation.

11.4 What would be the most efficient way to achieve those possible harmonisations? Do you believe the process described in Article 21(3) and 24 – granting ENTSG, on its own initiative or at the request of ACER, the role of revising the common data exchange solutions and the CNOTs in case of detected needs and technological developments is still fit for purpose?

Where additional alignment or harmonisation of data exchange solutions is genuinely required, ENTSG considers that the existing governance framework established under Articles 21(3) and 24 of the INT NC remains the most efficient and proportionate mechanism.

The current framework allows ENTSG, either on its own initiative or at the request of ACER, to revise the common data exchange solutions and the CNOTs in response to demonstrable operational needs or technological developments.

In practice, the Articles 21 and 24 process provides, sufficient flexibility to evolve technical specifications and data exchange solutions, structured stakeholder involvement and transparency and appropriate regulatory oversight, whilst avoiding the rigidity and complexity associated with a revision to the Network Code itself.

Importantly, this mechanism ensures that harmonisation efforts remain targeted, evidence-based, and proportionate. It enables technical evolution to be addressed at the appropriate level through the maintenance of CNOTs; standards, guidelines and protocols, rather than through binding legal changes.

No alternative mechanism has been identified that would deliver harmonisation more efficiently or more effectively. Revising the Network Code to achieve outcomes already delivered under Articles 21 and 24 would risk duplicating governance structures and increasing regulatory complexity without clear added value.

Furthermore, under the current framework, ENTSG provides well-established fora in which harmonisation issues can be raised, assessed, and resolved by organisations and expert groups with direct operational and technical competence. Addressing such matters primarily through regulatory revision would not necessarily result in better outcomes.

ENTSG considers the existing Articles 21(3) and 24 framework to remain appropriate, efficient, and sufficient for addressing any future harmonisation needs.

11.5 Would you prefer a 'business-as-usual' scenario" where no change is introduced with the aim of supporting further harmonization?

As outlined in the previous responses, ENTSG considers the current data exchange provisions under the INT NC to be fit for purpose and does not see a need for substantial updates or revisions at this stage. This position is supported by stable market operations and a high level of adherence to the existing CNOTs.

In this context, ENTSG would support a "business-as-usual" scenario, since it continues to enable incremental harmonisation where justified. The INT NC provides a good balance between enforcement of the solutions of Data exchange processes and has enough flexibility to take into consideration smaller entities (TSOs or network users to have at their disposal the most efficient solutions) which reflects the current situation. Any proposed amendments emerging from this consultation should be clearly evidence-based, demonstrate tangible benefits for market participants and be supported by broad stakeholder consensus.

At the same time, ENTSG recognises the value of the established FUNC process. Issues that have been formally assessed through the FUNC process and for which solution notes have been issued should be considered within any potential revision of the Network Code. Their inclusion could, possibly, be achieved by

targeted adjustments instead a full revision. This could result in the solution being developed faster as there has already been considerable stakeholder involvement and agreement and would not require a lengthy revision process.

Question 12 — Other data exchange possible amendments

12. Are there other amendments you would see fit related to data exchange?

Based on ENTSOG's experience and implementation monitoring, no additional amendments related to data exchange are considered necessary at this stage (Excluding the FUNC issues as previously mentioned).

The current data exchange provisions of the INT NC, together with the governance mechanisms established under Articles 21 to 24, have proven effective in ensuring secure, reliable, and interoperable data exchange across the European gas market.

Where clarifications, refinements, or adaptations have been required, these have been successfully addressed through the development and update of Common Network Operation Tools, implementation guidance and stakeholder coordination, without the need for changes to the Network Code itself.

In the absence of demonstrated market failures, interoperability issues, or regulatory gaps that cannot be resolved within the existing framework, no further amendments to the data exchange provisions are considered necessary.

Continued use of the established INT NC articles in Chapter V remains the most appropriate and efficient way to address any future needs.

11. Other

11.1 Proposed Public Consultation Questions

Question 13 — Other potential amendments

13. Have you identified other possible improvements to the network code? If so, what do they entail? Please describe in as much detail as possible.

As already indicated in previous responses to this consultation, ENTSOG does not see an urgent need to amend the INT NC.

Question 14 – Priority List

14. Have you identified other possible improvements to the network code? If so, what do they entail? Please describe in as much detail as possible.

No opinion.

Question 15 - Any other comments?

15. Do you have any other comments you would like to share with us?

No additional comments.

Question on confidentiality

*** ACER evaluates and may publish the received input. Do you consent that the submitted input is published?**

- ☒ Yes, ACER may publish the submitted replies.
- ☐ Yes, ACER may publish the submitted replies **anonymously**.
- ☐ No, ACER may not publish the submitted replies.

*** Does your submission contain confidential information?**

- ☐ Yes
- ☒ No

Thank you!

Contact

[Contact Form](#)