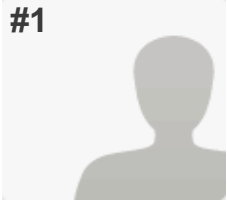


#1



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany,
Comments
Company with headquarter in Germany, engaged in the European energy business, not representing a Member State.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Storage operator, Trader/shipper/supplier,
Power generation

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

Storage: Binding CEN standard leads to increased expenditure of monitoring and cleaning as well as to longer non-operation periods. Additionally it might be necessary to prepare the gas before withdrawal.

Q8: Benefits/savings

./.

Q9: Costs

Storage: Investments that would lead to economic inefficiency of gas storage business.

Q10: Time (number of years)

./.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

We don't see any benefits for trading business, but physical risks and additional costs, so we propose to not apply the CEN standard on the whole EU chain.

PAGE 6: Page 6/8

Q12: Impacts

./.

Q13: Benefits/savings

./.

Q14: Costs

./.

Q15: Time (number of years)

./.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

We propose not to implement the CEN standard into the INT NC, neither for scenario "AT IP's only"

PAGE 7: Page 7/8

Q17: Impacts

./.

Q18: Benefits/savings

Respondent skipped this question

Q19: Costs

./.

Q20: Time (number of years)

./.

Q21: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

We propose not to implement the CEN standard into the INT NC, neither for scenario "Voluntary adoption".

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

Application of CEN standard in the case, TSO don't reach an agreement, should be refused, as it will be effective for all market players without any influence.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Respondent skipped this question

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

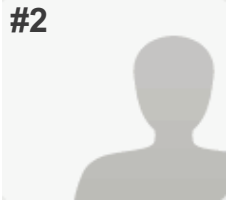
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

Implementation of CEN standard in NC INT means: - no benefits - physical and safety risks - avoidable costs
Don't create problems if there aren't any!

#2



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Slovakia

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

- significant volume of gas in Europe might become off-spec, security of supply can be affected
- impossibility to flow off-spec gas through IP could in some cases form an administrative barrier without real technical or commercial reason. Example – off-spec gas should be refused despite of the fact that downstream party is able to treat the gas or is insensitive
- it might be challenging to achieve harmonization at entry points to EU
- in-spec gas shall be accepted - there might be parties, for which it could be a problem, if they have special requirements agreed with delivery party
- above scope of INT NC

Q8: Benefits/savings

- negligible comparing to the current situation. According to our knowledge the users are satisfied with the current gas quality standard

Q9: Costs

- detailed analyse was not done, but costs are for investment into new technology as well as for operation. The investment into gas treatment facility might reach hundreds millions of EURO in eustream (e.g. it would be necessary to decrease water due point of 200 mil m3 of gas per day)

Q10: Time (number of years)

expected investment implementation for gas drying facility might reach 5 years (including engineering, permitting, construction phase)

Q11: Is this given scenario feasible for your segment/organisation/country?

No,
Comments
Negative impacts are higher than benefits/savings.

PAGE 6: Page 6/8

Q12: Impacts

- it might be challenging to achieve harmonization without including entry points to EU from 3rd countries

Q13: Benefits/savings

- negligible comparing to the current situation. According to our knowledge the users are satisfied with the current gas quality standard

Q14: Costs

- detailed analyse was not done, but costs are for investment into new technology as well as for operation

Q15: Time (number of years)

- expected investment implementation for gas drying facility might reach 5 years (including engineering, permitting, construction phase)

Q16: Is this given scenario feasible for your segment/organisation/country?

No

PAGE 7: Page 7/8

Q17: Impacts

Preservation of current situation.

Q18: Benefits/savings

- no needs to change existing parameters in the contracts
- no needs to install new or change existing technology

Q19: Costs

no additional costs

Q20: Time (number of years)

N/A

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

The biggest risk/negative impact of this solution might be a situation when one TSO is forced for unreasonable investment into the transmission network facilities in order to meet the stricter CEN standard. Also the acceptance of such costs by the NRA and their reflection in the tariffs might be very risky for TSO.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Hydro carbon dew point,

What would be the value proposed? Can you provide evidence for that?

-8°C at 4.0MPa. Value in current CEN EN 16726 is too strict and it could be difficult to achieve.

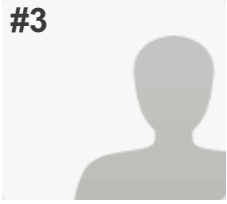
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Voluntary adoption

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#3



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Lithuania

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

PAGE 5: Page 5/8

Q7: Impacts

Respondent skipped this question

Q8: Benefits/savings

Respondent skipped this question

Q9: Costs

Respondent skipped this question

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 6: Page 6/8

Q12: Impacts	<i>Respondent skipped this question</i>
Q13: Benefits/savings	<i>Respondent skipped this question</i>
Q14: Costs	<i>Respondent skipped this question</i>
Q15: Time (number of years)	<i>Respondent skipped this question</i>
Q16: Is this given scenario feasible for your segment/organisation/country?	Yes

PAGE 7: Page 7/8

Q17: Impacts	<i>Respondent skipped this question</i>
Q18: Benefits/savings	<i>Respondent skipped this question</i>
Q19: Costs	<i>Respondent skipped this question</i>
Q20: Time (number of years)	<i>Respondent skipped this question</i>
Q21: Is this given scenario feasible for your segment/organisation/country?	Yes

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	No
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes
Q25: Would you recommend the revision of the current requirements of the CEN standard?	No
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

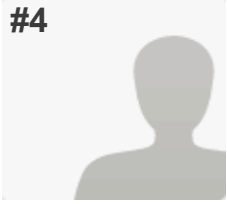
Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes,

Comments It would be much more clear.

#4



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Non-EU Member State, please specify below ,

European interests (stakeholder association), please specify below

,

Comments

The Norwegian Oil and Gas Association is an Association for oil & gas producers and Suppliers on the Norwegian Continental Shelf. We are member of the Internatinal Association of Oil and Gas Producers, IOGP.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Upstream operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

Please also refer to the answers provided to the first public consultation.

Our members have highlighted that the main issue of this scenario for the Norwegian gas production is linked to the CO2 limits in the standard. In case such standard was made binding at the EU import entry points, the negative impacts would be mainly focused at the St Fergus terminal which connects the Gassco system with the UK (National Grid). At this point, currently, an agreement between the terminal operator and National Grid allows gas with a CO2 content of 4 % to enter the UK and be blended afterwards. At the same time, however, the recently adopted CEN standards provide that “the carbon dioxide shall be no more than 2,5 %” and only “where the gas can be demonstrated not to flow to installations sensitive to higher levels of carbon dioxide, e.g. underground storage systems, a higher limit of up to 4 % may be applied”. If the flexibility to extend the threshold to 4 % was removed, this would be particularly impacting for the Norwegian production that has a CO2 content above 2,5 % that would become off-spec and at risk of being rejected by National Grid. Due to confidentiality reasons our members have not been able to disclose the amount of production that might be reasons our members have not been able to disclose the amount of production that might be impacted. However, according to the UK TSO National Grid, in 2015 approximately 13.8 bcm of gas with a CO2 content above 2.5 % was delivered to the NTS. For Oxygen the data shows that approximately 2.1 bcm of gas with an O2 content above 0.001% was delivered to the NTS over the same period. This means that approximately 20% of the UK gas supply would have been refused entry to the NTS, causing a massive concern in terms of security of supply and market liquidity. A significant part of this gas comes from Norwegian fields.

Q8: Benefits/savings

We expect no benefits at all. Moreover we have not seen any attempt to identify or substantiate possible benefits of amending the INT NC.

Q9: Costs

The costs to overcome the economic and operational barriers are prohibitive. Norwegian Oil and Gas Association refers to an example given by IOGP, in their response to the first public consultation, that documents the costs and impacts of installation CO2 removal facilities. Legal issues are of another nature and should rule out the whole chain implementation option.

With particular regard to Norwegian gas, the costs to overcome the barriers upstream (e.g. new infrastructures) are also prohibitive. In addition, due to the specificities of the system, (costly) solutions could be implemented only as of mid-20s. Therefore, the application of the CEN standard will lead to a significant production loss or delay.

Q10: Time (number of years)

As described in our response to question 9 the negative implications for Norwegian gas would not be overcome until mid-20s. It is important to highlight that it would have to be overcome with a significant investments in new infrastructures.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible

Q12: Impacts

Our understanding of the revised scenario 3 is that it would not add anything new to what TSOs can do already today under articles 15 and 19 of the INT NC. In particular, nothing in the current rules prevents TSO from exploring the possibility to apply the CEN standards to overcome cross-border gas quality issues at interconnection points. Therefore in terms of impacts we do not see anything additional to what would be already the case under the existing rules. At the same time we wonder what would be the added value of running a legislative process to amend the INT NC if this does not bring any concrete changes.

Q13: Benefits/savings

We do not expect benefits and have not seen evidence that identifies or substantiates possible benefits of amending the INT NC. We believe the mechanism as described in articles 15 and 19 of the network code is effective to solve gas quality issues at interconnection points – if they occur - without the need to make changes. Nothing prevents TSOs to consider whether an IP issue could be solved by adopting the CEN standard for the conflicting parameter together with retaining national specs.

Q14: Costs

Our understanding of the revised scenario 3 is that it would not add anything new to what TSOs can do already today under articles 15 and 19 of the INT NC. In particular, nothing in the current rules prevents TSO from exploring the possibility to apply the CEN standards to overcome cross-border gas quality issues at interconnection points. Therefore in terms of costs we do not see anything additional to what would be already the case under the existing rules. At the same time we wonder what would be the added value of running a legislative process to amend the INT NC if this does not bring any concrete changes.

Q15: Time (number of years)

This question is most relevant for individual TSOs to respond to

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

We refer to our responses to the questions 12 and 14. In Our opinion it is not feasible and sustainable to process to amend the network codes if this do not lead to any concrete changes to the existing rules. It has been demonstrated that no benefits have been brought to the market by implementation of the CEN gas quality standards. We therefore believe that the process should be stopped and an amendment of the INT NC should not be pursued

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Q17: Impacts

Please also refer to the answers provided to the first public consultation.

We understand that voluntary adoption of the CEN standard by individual Member States would eliminate the flexibility to apply less stringent limits at system entry points, including interconnection points. This could result in loss of flexibility to accept off spec gas on a case-by-case basis where this could be beneficial to the efficient use of the system (and without compromising the safety of end-user appliances).

Q18: Benefits/savings

We do not expect benefits. Member States that wish to adopt the CEN gas quality standard in their national legislation can already do so on a voluntary basis. We have not seen evidence that identifies or substantiates possible benefits of including a possible voluntary adoption scenario in the INT NC. We believe the mechanism as described in articles 15 and 19 of the network code is effective to solve gas quality issues at interconnection points – if they occur - without the need to make changes to the network code.

We support ENTSOG's redefined scenario 4 proposal not to amend the INT NC.

Q19: Costs

N/A under the condition that the INT NC is not amended

Q20: Time (number of years)

N/A under the condition that the INT NC is not amended

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

A voluntary adoption reflects the existing situation under the condition that the INT NC is not amended

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No,

Comments

The way the redefined scenarios have been defined is clear. This does not imply that we agree with the suggestion that the INT NC could be amended to implement scenario 1 and 3.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

The Norwegian Oil and Gas Association consider that the INT NC should be amended to include a reference to the standard.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

This seems to be a hypothetical question. There must be strong reasons if TSOs in a situation of not reaching an agreement do not believe that applying the CEN standards is a solution to the issue.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

What would be the value proposed? Can you provide evidence for that?

Ref. our answer to question nr. 25. We do not believe the possible revision of the CEN standard is within the scope of the ENTSOG task. This does not imply agreement with the CEN standard.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

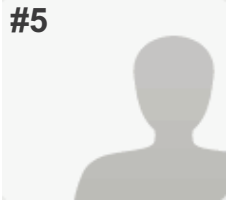
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

We support ENTSOG's redefined scenario 4 proposal not to amend the INT NC

#5



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No,
Comments
GNI has chosen to provide high level responses.

Q4: Which EU Member State do you represent?

Ireland

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator,
Distribution system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	2
At IPS	3
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

Increased network operational costs due to implementation, monitoring and correcting.

Q8: Benefits/savings

GNI is not aware of any benefits or savings.

Q9: Costs

GNI has not estimated costs.

Q10: Time (number of years)

GNI has not carried out a detailed analysis, but estimates a number of years.

Q11: Is this given scenario feasible for your segment/organisation/country?

Comments It is feasible but not desirable.

PAGE 6: Page 6/8

Q12: Impacts

GNI is not aware of any positive benefits. It would result in increased operational costs.

Q13: Benefits/savings

GNI is not aware of any benefits.

Q14: Costs

GNI hasn't carried out cost estimates.

Q15: Time (number of years)

GNI hasn't carried out a detailed analysis of the effort required to implement.

Q16: Is this given scenario feasible for your segment/organisation/country?

Comments Feasible but not desirable.

PAGE 7: Page 7/8

Q17: Impacts

This scenario could be implemented as required / desired.

Q18: Benefits/savings

It would avoid unnecessary cost and effort for TSOs who would not benefit from its adoption.

Q19: Costs

GNI has not estimated costs.

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments Yes, but not required.

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

It would not be helpful in reaching agreement.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Oxygen, Carbon dioxide,

What would be the value proposed? Can you provide evidence for that?

We don't propose a value.

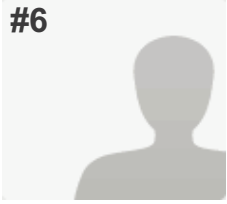
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#6



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

PAGE 5: Page 5/8

Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems. Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

Q9: Costs

Not possible to verify exactly but substantially lower than in other scenarios. In case the TSO has not yet installed quality metering installations at all entry points, additional costs for metering installations.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 6: Page 6/8

Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling. As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.

Q14: Costs

Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

Several years.

Q16: Is this given scenario feasible for your segment/organisation/country?

No

PAGE 7: Page 7/8

Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. Interruptions of Transit capacities could not be excluded. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

If the status quo remains, we expect no benefit as the current legal unsecure situation will remain.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

It is for our organisation feasible but the problem of legal uncertainty is not solved.

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments

question unclear: if CEN standard would be binding at IPs ("at IPs only scenario") why should it function as a default rule at the same time?

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Water dew point,
What would be the value proposed? Can you provide evidence for that?
The give requirement in CEN Standard is not concrete. Because different absolute water contents are possible.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#7



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?	No
Q4: Which EU Member State do you represent?	Germany
Q5: Which segment (s) of the gas value chain do you represent? [1]	Storage operator

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Q6: Rank the scenarios in order of preference	
Whole EU chain	2
At IPS	1
Voluntary adoption	3

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Q7: Impacts	<i>Respondent skipped this question</i>
Q8: Benefits/savings	<i>Respondent skipped this question</i>
Q9: Costs	<i>Respondent skipped this question</i>
Q10: Time (number of years)	<i>Respondent skipped this question</i>
Q11: Is this given scenario feasible for your segment/organisation/country?	<i>Respondent skipped this question</i>

PAGE 6: Page 6/8

Q12: Impacts	<i>Respondent skipped this question</i>
Q13: Benefits/savings	<i>Respondent skipped this question</i>
Q14: Costs	<i>Respondent skipped this question</i>
Q15: Time (number of years)	<i>Respondent skipped this question</i>
Q16: Is this given scenario feasible for your segment/organisation/country?	<i>Respondent skipped this question</i>

PAGE 7: Page 7/8

Q17: Impacts	<i>Respondent skipped this question</i>
Q18: Benefits/savings	<i>Respondent skipped this question</i>
Q19: Costs	<i>Respondent skipped this question</i>
Q20: Time (number of years)	<i>Respondent skipped this question</i>
Q21: Is this given scenario feasible for your segment/organisation/country?	<i>Respondent skipped this question</i>

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	<i>Respondent skipped this question</i>
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	<i>Respondent skipped this question</i>
Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	<i>Respondent skipped this question</i>
Q25: Would you recommend the revision of the current requirements of the CEN standard?	<i>Respondent skipped this question</i>
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

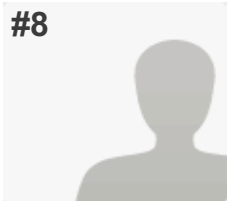
Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes,

Comments

Yes, innogy Gas Storage sees the necessity to implement a gas quality standard in the preference stated in question 6 for L-Gas. innogy Gas Storage NWE GmbH operates and markets gas storage facilities, located in Germany, for the North-West European gas market. Due to the different gas requirements for L-Gas in Germany and L-Gas (respectively Groningen Gas) in the Netherlands, at the location in Gronau-Epe we operate one storage facility solely connected to the Dutch grid of Gasunie Transport Services (GTS) and another completely separated facility solely connected to the German L-Gas grid of Open Grid Europe (OGE). The gas quality requirements for L-Gas in Germany and L-Gas (respectively Groningen-Gas) in the Netherlands are different in some points although main parts of the L-Gas in Germany is imported from the Netherlands. The main parameter having different requirements is the so called Wobbe Index, which reflects the energy content of natural gas: In Germany the normally applicable Wobbe Index range for L-gas (according to the DVGW rules in worksheet G 260) is 39.6 - 46.8 MJ/Nm³, whereas the permitted range for our storage facility in Gronau-Epe connected to the GTS grid is only 43.1 - 44.8 MJ/Nm³. Provided, that there are equal gas quality requirements for L-gas on both sides of the border in place, it would be easily possible with only little investments to connect both storage parts to one common storage facility. This combined facility could be used for injection and withdrawal both in the German and the Dutch gas grid. Having this flexibility the storage would have a positive impact on Security of Supply in Germany and the Netherlands for multiple supply and demand scenarios in North-West Europe. Therefore, we ask you to support our approach to harmonise the gas quality requirements for L-Gas in the North-West European gas market and to take care of this issue in the further work on the INT NC.



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

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Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

Q9: Costs

Not possible to verify exactly but substantially lower than in other scenarios. In case the TSO has not yet installed quality metering installations at all entry points, additional costs for metering installations.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling. As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.

Q14: Costs

Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility . For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

Several years.

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. Interruptions of Transit capacities could not be excluded. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

If the status quo remains, we expect no benefit as the current legal unsecure situation will remain.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

It is for our organisation feasible but the problem of legal uncertainty is not solved.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments
question unclear: if CEN standard would be binding at IPs ("at IPs only scenario") why should it function as a default rule at the same time?

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Water dew point,
What would be the value proposed? Can you provide evidence for that?
The given requirement for the water dew Point is not concrete/ specified clearly, because different water contents are possible.

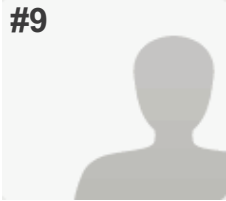
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#9



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Belgium, France, Germany, Ireland, Italy,
The Netherlands, Portugal, Spain,
Comments Mainly Spain, France and Italy

Q5: Which segment (s) of the gas value chain do you represent? [1]

Distribution system operator,
Trader/shipper/supplier, Power generation

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

This scenario might have negative impacts, because the CEN Standard EN 16726 is more restrictive than national legislation currently in force in Spain.
There are discrepancies between gas quality contractual clauses already signed in long term contracts and the CEN Standard EN 16726.
Gas quality parameters included in gas long term contracts, to be in force at the time of implementation of the CEN Standard EN 16726, can exceed the range contemplated in the CEN Standard EN 16726. This may involve that some current and future supplies would be off-spec implying a direct impact on the security of supply and consequently an important increase of gas prices in the whole gas chain.

Q8: Benefits/savings

We do not expect any benefits.

Q9: Costs

This scenario should imply a significant cost for the whole gas system.

Q10: Time (number of years)

It would take a large enough implementation period because of gas long term contracts duration currently in force.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

This scenario is not feasible from our company's perspective.

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Q12: Impacts

The main impact should be that some additional investment could be needed.

Q13: Benefits/savings

This scenario would imply less constrains caused by the implementation of the CEN Standard EN 16726 than scenario 1 (whole EU chain).

Q14: Costs

Some additional investment could be needed and consequently gas prices can be slightly higher because of this.

Q15: Time (number of years)

A transition implementation period conditioned by necessary investment.

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments It can be feasible for our company.

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Q17: Impacts

Member States would have a standard ready, to be used should they choose to implement it.

Q18: Benefits/savings

There are no unnecessary barriers to gas flows introduced and long term gas contracts and security of supply are not affected.

Q19: Costs

No additional costs.

Q20: Time (number of years)

The standard can be introduced in due time.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

It is the most feasible scenario for our company.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes,

Comments

We fully agree with this approach. In our view, this point is essential.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#10



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Lithuania, The Netherlands

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	1
Voluntary adoption	2

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Q7: Impacts

The TSO has no possibility to adjust the quality of off-spec entries by commingling gasses. Producers cannot benefit anymore of the TSO quality adaptation activities on a permanent or incidental basis.

A complete new setup of the legal framework regarding gas quality in the Netherlands is required.

Some of the existing contracts need to be renegotiated which can result in additional costs of the parties involved for the modification of their installations if the new requirements cannot be met. The cross border points with Non-EU-partners are a special case with this respect. So, furthermore, it needs to be clarified whether the gas treatment of gas coming from non-EU member state supplies is the responsibility of the non-EU member gas supplier or the EU member TSO. Some storages have specific quality requirements that should be withdrawn, resulting in additional costs for these specific end-users.

Worst case this scenario could result in an early abandonment of largely depleted gas fields because the costs for modification of the treatment facilities cannot be recovered by the additional gas supply and therefore negatively impact security of supply. In addition, production of new small field can be less attractive due to higher treatment costs.

Q8: Benefits/savings

There are no substantial benefits. Furthermore the trading of natural gas across borders is already for years in place without resulting in gas quality barriers. For the gas quality parameters mentioned in the EN 16726, the TSO doesn't need to carry out quality adaptation tasks anymore.

The current procedure described in article 15 of the NC INT does solve potential gas quality barriers in a much more elegant way resulting in an optimum balance between the requirements set on both sides of the IP.

Q9: Costs

As a TSO, we are not able to make an estimate of the costs involved to renegotiate the gas supply contracts, the necessary modifications of the gas treatment facilities and changing the legal framework in the Netherlands. For the TSO itself, we expect the implementation costs to be limited. Potential substantial treatment costs for gas not fulfilling the standard coming from non-EU countries could occur and at the moment it is not clear whether these costs need to be taken on board by the non-EU producer or the EU TSO.

Q10: Time (number of years)

For the whole market, given the various barriers described, long lead times are expected. Especially because the legal framework needs to be adapted which requires a change of the Gas law in the Netherlands. As an example experiences in the Netherlands with increase of the upper Wobbe-limit showed a transition period of roughly 5 to 6 years. Furthermore, the design and construction of gas treatment facilities also takes roughly the same period of time.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

From the perspective of the TSO, the technical implementation of this scenario within the TSO environment might be possible. Strictly refusing "off-spec" gas could however result in security of supply issues. From a Dutch point of view, changing the gas quality legislation and the commercial contracts which contain deviating gas quality requirements and the modification of the treatment facilities will be a major operation. Due to absence of clear benefits this scenario will commercially not be feasible.

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Q12: Impacts

No serious impact expected since the current situation as of today can be continued.

Q13: Benefits/savings

No real benefits are expected from this scenario compared to the current way of working in case of existing gas quality barriers. A positive aspect of this scenario is the implementation of the EN 16726 standard in a natural way into the existing procedure for solving gas quality barriers (Article 15 in the current version of the Network Code Interoperability and Data Exchange).

The possibility for TSOs to agree bilaterally on different values in case the EN 16726 requirements don't result in the optimum solution to solve a gas quality barrier is definitely an advantage of this scenario.

Q14: Costs

Because the current way of working will be possible within this scenario, the costs will not be higher compared to the current situation.

Q15: Time (number of years)

Zero

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

This scenario corresponds well with the current way of operation and only affects the TSOs.

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Q17: Impacts

No serious impact expected since the current situation as of today can be continued.

However, the voluntary adoption of the EN 16726 standard by an individual Member State could result in new gas quality barriers on IP between this Member State and the neighbouring Member States if the Member State gas quality specifications change significantly by adopting the EN 16726 standard. In such a case, the procedures in article 15 of the NC INT will be used to remove the new barrier. However, the outcome of such a process could be that the Member State that voluntarily adopted the EN 16726 standard needs to implement additional measures to overcome the newly appeared gas quality barrier.

Q18: Benefits/savings

No real benefits are expected from this scenario compared to the current way of working in case of existing gas quality barriers.

Q19: Costs

Because the current way of working will be possible within this scenario, the costs will not be higher compared to the current situation. Only in the case, the voluntary introduction of the EN 16726 standard by a Member State results in a new gas quality barrier which cannot be solved by swapping or co-mingling of gas streams, additional costs can occur. The costs of the measures to be taken depend strongly on the parameter(s) causing the quality barrier and therefore it is not possible to give a generic figure for the costs involved.

Q20: Time (number of years)

Zero, except when adoption of de code in a neighbouring country triggers additional measures. In that case 4-5 years.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

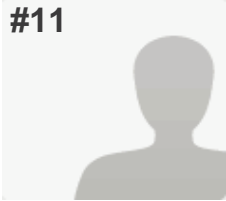
Comments

This scenario corresponds well to the current way of operation and only affects the TSOs.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	Yes, Comments Although clearly not our preference at all, the whole EU chain scenario as is, needs to our opinion be extended with a legal framework in which a description is given how to deal with "off-spec" situations which occur in day-to-day operations and in case of security of supply issues.
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes, Comments This option promotes the harmonisation of the gas quality in Europe in case there is no better preferred solution by all parties involved at an IP.
Q25: Would you recommend the revision of the current requirements of the CEN standard?	No
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	<i>Respondent skipped this question</i>
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	No, Comments It is questionable if the EU Directive provides a legal basis for regulating the gas quality for the whole EU chain under the Network Code Interoperability & Data Exchange (NC INT). As long as the EN 16726 standard is not used as a default rule the necessity to amend the NC INT is minimal.

#11



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

United Kingdom

Q5: Which segment (s) of the gas value chain do you represent? [1]

Trader/shipper/supplier, Power generation

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Q6: Rank the scenarios in order of preference

Voluntary adoption

1

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Q7: Impacts

Security of supply – GB could lose 20% of current supply. The idea of using flow restrictions does nothing to address this issue faced by GB at major import and entry points for domestic production

Reduced liquidity in traded markets

Detrimental impact on competition in supply and costs to customers

Impact on electricity market

Investment for compliance may reduce investment in other areas

Being locked into a supply standard could limit new and developing supply sources including LNG, biomethane, shale

Also see Response to Qns 6,7,8 20, & 24 in first consultation

Q8: Benefits/savings

None

Q9: Costs

Unknown

See Response to Qn 26 in first consultation

Q10: Time (number of years)

Unknown

See Response to Qn 27 in first consultation

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Energy UK can see no case for implementing the CEN standard when barriers to cross border trade arising from gas quality have not been identified and if such issues were identified for it to be demonstrated that Article 15 in the current Interoperability code is insufficient to address these. We can only see detrimental impacts with the potential for further unintended consequences

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Q12: Impacts

This scenario seems to do little more than the current Article 15 beside setting the CEN standard as a potential default, despite trying to suggest that this is not the case. We consider that this would potentially bias any analysis and negotiation

Also see Response to Qn 11 in first consultation

For Questions 12- 15 see response to Qn 7-10 above

Q13: Benefits/savings

Respondent skipped this question

Q14: Costs

Respondent skipped this question

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Energy UK is concerned that having the CEN standard as a fall-back default even on a parameter by parameter basis could lead to biased outcomes and since the process for changing codes is lengthy and uncertain innovative solutions could be discouraged or investment in new supply sources deterred.

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Q17: Impacts

Compliance at least cost and avoiding the impacts identified above in Qn 7

Q18: Benefits/savings

Continuation of the current arrangements allows cross border trade to continue as today, with any future issues being addresses on a case by case basis to provide a tailored solution – avoiding a one size fits all approach across the EU

Q19: Costs

None as this represents no change

Q20: Time (number of years)

Not applicable

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No,

Comments
Energy UK sees voluntary adoption as the only reasonable way forward to avoid the risk of unintended consequences for security of supply, competition and impacts on customers. We consider that the current Article 15 which includes cost benefit analysis and stakeholder consultation to address specific issues to be sufficient.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes,

Comments
However we do not support the standard being made binding

Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments See Qn 16

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

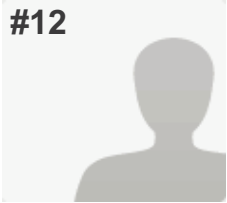
Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments
Energy UK does not consider either approach would be an improvement on the current arrangements as barriers to trade arising from gas quality issues have not been widely identified

#12



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

France

Q5: Which segment (s) of the gas value chain do you represent? [1]

LNG terminal operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

PAGE 5: Page 5/8

Q7: Impacts

The harmonization in gas quality requires some adjustments in terms of installation and on site maintenance practices.

Q8: Benefits/savings

Whole EU chain ensures more free flows of gas.
An European standard has more value and more weight for discussion between stakeholders and producers.

Q9: Costs

?

Q10: Time (number of years)

minimum 5 years

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

No harmonization on the gas quality means more variations for end users.

Q13: Benefits/savings

Status quo situation.

No harmonization means more investments for some industrials so as to control gas quality

Q14: Costs

N/A

Q15: Time (number of years)

Right now.

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

?

Q18: Benefits/savings

No benefits.

Nevertheless, all stakeholders agree with EASEE-gas specifications.

Q19: Costs

N/A

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes,

Comments

It is better that a standard not yet written does not become legally binding.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments Easee-gas CBP

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

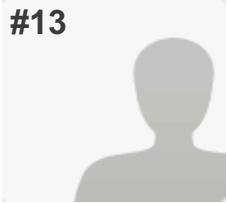
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#13



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

United Kingdom

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

As stated in our response to the first consultation, we are not aware of any specific technical condition that would prevent the application of the standard on our GB transmission network, nor have we identified any adverse impact on the integrity of our pipelines and other operational assets as a consequence of applying the standard. We would, however, need to amend the gas quality schedule in approximately 30 operational agreements with upstream parties and storage operators that deliver gas to our transmission network.

One technical difficulty that we identified in relation to the 'whole chain' option in our response to the first consultation has been removed in the refined scenario in this second consultation. This was that a relative density range of 0.555 to 0.7 (as defined in the CEN standard) implies a Wobbe Index range that is greater than the current GB legal range. The refined scenario in this second consultation makes clear that TSOs would be entitled to refuse gas that meets the standard but does not meet other parameters that are defined nationally that are not covered by the standard.

As stated in our response to the first consultation, we have conducted analysis which shows that 20% of GB supplies would have been refused entry to our transmission system if the base limits for CO₂ and O₂ of 2.5% and 10ppm in the CEN standard had been applied at all GB entry points during calendar year 2015. We believe that such a material adverse impact to GB security of supply would be inconsistent with the Commission's objectives and with the UK government's strategy of maximising indigenous gas production.

From a wider EU level perspective, we are unsure how implementation of the 'whole chain' option could work at interconnection points with countries that are not EU member states. Whilst the EU member state would be legally bound to implement the CEN standard limits at such points, the non EU member state could not be compelled to agree to such limits.

Q8: Benefits/savings

Implementation of the 'whole chain' option would standardise natural gas as a product within the EU. Upstream parties would be clear what specification would have to be met to land gas at any EU entry point and any potential barriers to the conveyance of gas within the EU would not arise.

Specifically for us as a TSO, such a situation would be consistent with our transportation licence objective to not unduly discriminate in the terms we offer to parties wishing to access our network.

Q9: Costs

The 20% of UK supply that risks being locked out of GB if the CEN standard were implemented as currently drafted, roughly equates to £2billion.

We would also note from the first consultation that, at present, there do not appear to be any barriers to the conveyance of gas across IPs caused by different gas quality specifications that are not capable of being addressed locally by the parties involved.

Q10: Time (number of years)

We estimate that it would take at least 3 years to renegotiate all our contracts with upstream parties and amend our operational systems in order to implement the 'whole chain' option.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

The 'whole chain' scenario is feasible in the sense that it could be implemented. However, on balance, we regard this option as undesirable because of the wider implications – chief among which is the potential detrimental impact to GB security of supply and the lack of any clear benefits to counter that impact. We feel that it would also constrain the flexibility of member states to evolve their gas quality specification to meet future challenges. Indeed, it seems to us that one needs to have a vision of the future of EU gas transmission and design the gas quality specification to fit that future scenario, whereas our understanding is that the current CEN standard is one that was negotiated based on what countries considered they could cope with today.

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Q12: Impacts

We note that this 'IPs only' scenario is significantly different from that contained in the first consultation. This option in the first consultation was to mandate the application of the CEN standard at IPs but not at any other network entry or exit point which would have been unworkable for us as a TSO because we would receive gas from parties who would not be bound by the standard and that gas would flow to an IP which would.

The refined scenario is more acceptable because it would avoid this situation and it would provide an option for TSOs to discuss in the event of a parameter being a barrier to cross border flow. However, whilst it may serve as a starting / reference point for TSO discussions in such a situation, we would question its value because an Article 15 process being triggered must implicitly mean that the TSOs had been able to agree on a common value for that particular parameter at the IP in question.

Q13: Benefits/savings

Whilst we see limited practical value in this scenario for the reason explained in the paragraph above, it would bring greater clarity to the Interoperability Code by explaining how Recital 5 and Article 15 work together.

Q14: Costs

We would not incur any costs if this option were implemented.

Q15: Time (number of years)

We would not require any implementation lead-time.

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

Since the standard would be voluntary there would be no impacts. It is expected that the GB gas industry will shortly begin to consider the potential for widening the GB gas quality specification and this would be able to continue unhindered by the potential constraints of CEN standard compliance.

Q18: Benefits/savings

Member states would be free to deal with gas quality requirements locally and have the flexibility to adjust them in response to changing requirements within their MS. Any constraints caused by gas quality at cross border points would be dealt with by the process set out in Article 15 of the Interoperability Code.

Q19: Costs

No costs would be incurred under this option.

Q20: Time (number of years)

Not applicable, since there would nothing to necessarily implement.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

This would be undesirable in our view because it could skew the negotiation between the TSOs involved if, say, the CEN standard was a close match to what one TSO wanted but not the other.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Oxygen, Carbon dioxide,

What would be the value proposed? Can you provide evidence for that?

We do not propose any particular alternative value but refer to our answer to Q7 of this consultation which shows the potential detrimental impact that these parameters could have to GB security of supply. As stated in our response to the first consultation, we consider the current flexible wording for these two parameters to be unworkable for the following reasons:

- It is not clear who has the obligation to determine whether sensitive sites would be affected. We assume that this duty would fall upon TSOs.
- It is impossible to establish definitively how far gas from a particular source of supply will penetrate into a TSO's network. The answer will be different depending on the supply and demand assumptions that are used in the network modelling. The uncertainty of this is exacerbated for a pipeline network like the UK's which has multiple sources of geographically dispersed supply and where demand off the transmission system can be dynamic within the gas day in response to a number of factors such as changes in weather patterns, gas price movements in different European markets and other operational and commercially driven impacts from the electricity market.
- Even if it were possible to establish a definitive area of penetration, we are unsure how any higher limits would be managed over time as flow patterns change and new connection requests are made. For example, if it were agreed that an entry point could have a 4% CO₂ limit but then in a few years' time the TSO receives a connection from a salt cavity storage operator close to that source of supply, the TSO would either have to renegotiate the 4% down to 2.5% or refuse the connection request. In our view, this would contribute instability to the EU regulatory environment that would be to the detriment of investor confidence.
- It is not clear what the definition of a 'sensitive site' is. It may be possible to establish an answer on this point technically, but other parties could also be affected commercially.
- We would also highlight that applying the oxygen limit as a 'daily average' rather than instantaneously does not fit with NGGT's gas quality excursion management procedures. If the gas quality being delivered to our network by an upstream party goes outside of the agreed specification, we as the TSO need to take curtailment action straight away, not wait until the end of the day to see if the average of all measurements taken within the day was within the limit.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Voluntary adoption

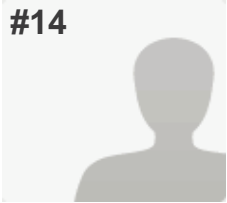
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

Our preference remains 'voluntary adoption'. To underline our answer to Q11 of this consultation, in our view, a vision of the future of EU gas transmission is needed first, which gas quality specification(s) should then be designed to fit, whereas the current CEN standard is one that appears largely to have been negotiated based on what EU countries considered they could cope with today.

#14



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

France

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

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Q7: Impacts

We are already compliant. There is no impact for France

Q8: Benefits/savings

the same specifications for all the gas chain will ease the day to day operations of all network users. Whereas the same specifications at all IPs, will only ease TSOs day to day operations (no co-minling, no treatment to allow the gas to flow to another network).

Q9: Costs

: this solution may oblige some end-users to install gas treatment at the entry of their process to deal with new gas quality (in-spec) delivering. This is not the case in France as we are already compliant with the standard

Q10: Time (number of years)

immediately for France, maybe 5years for some other countries

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

this solution will allow TSO/DSO to have different specifications, which is not in favour of flexible flows. Indeed, specifications could be different at one entry point and/or at one exit point, so the TSO could be obliged to treat the gas which will increase its cost

Q13: Benefits/savings

this scenario proposes a fixed value for each parameter (the one of the standard) that can be studied in case of a restriction identified when applying NC INT Article 15 (this is not the case with the actual version of the NC INT Article 15 which does not provide a default solution)

Q14: Costs

this scenario could force a TSO to build a gas treatment unit at an entry/exit point to adapt the gas quality to the IP specification.

Q15: Time (number of years)

5years

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

no help to prevent restriction due to gas quality

Q18: Benefits/savings

none

Q19: Costs

no increase, but no benefit of harmonisation at long term as wished firstly by EC

Q20: Time (number of years)

immediate

Q21: Is this given scenario feasible for your segment/organisation/country?

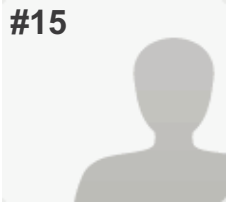
Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG? No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes
Q25: Would you recommend the revision of the current requirements of the CEN standard?	No
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	<i>Respondent skipped this question</i>
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	Yes

#15



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

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Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

Q9: Costs

Not possible to verify exactly but substantially lower than in other scenarios. In case the TSO has not yet installed quality metering installations at all entry points, additional costs for metering installations.

Q10: Time (number of years)

Several years.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling. As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.

Q14: Costs

Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility . For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

Several years.

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

If the status quo remains, we expect no benefit as the current legal unsecure situation will remain.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

It is for our organisation feasible but the problem of legal uncertainty is not solved.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments
unclear: if CEN standard would be binding at IPs (“at IPs only scenario”) why should it function as a default rule at the same time?

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Total sulfur without odorant,
What would be the value proposed? Can you provide evidence for that?
total sulfur with odorant, Wobbe index

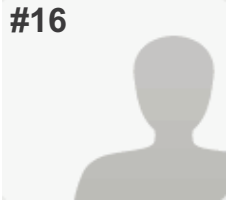
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#16



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

United Kingdom

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Upstream operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

According to National Grid, 13.8 bcm of gas would have been curtailed in the UK in 2015, due to the proposed CO₂ limit, and a further 2.1 bcm would have been curtailed due to the oxygen limit – a total of 15.9 bcm. This is around 20% of the UK's gas supply.

Q8: Benefits/savings

None. We are not aware of any cross-border trade barrier related to gas quality at interconnection points. The existing regime reflects regional variations in offshore gas quality. There is no logical reason to change a system that has served the UK and Europe well.

Q9: Costs

At a gas price of 40 pence per therm, 15.9 bcm of gas is worth over £2.25 billion, or around €2.5 billion. This curtailed gas would have negative impacts on upstream operators, the UK's balance of payments and ultimately consumers. It would also tend to increase still further Europe's dependence on imported gas.

Q10: Time (number of years)

This is likely to be an ongoing annual cost. This is because natural gas production from the UK offshore environment varies in its composition, for example in levels of CO₂, N₂, H₂O and condensate. This requires various levels of processing, but at the consumer end, it is simply natural gas.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

This scenario is not feasible. It presents unacceptable levels of cost, with no corresponding benefits. In addition, the composition of any new supply of natural gas, such as shale gas, is similarly likely to vary, which will impact on processing and pipeline requirements, but not the consumer. Until we have sufficient data, which will take several years, this variation cannot be determined. To change to a new standard now will deter investment in a new industry which could be vital to the UK's future gas supplies.

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Q12: Impacts

TSOs already have the option voluntarily to adopt the CEN standard. Given that this scenario does not seem to make the CEN standard legally-binding, it is not clear how this scenario would impact.

Q13: Benefits/savings

We do not see any benefits from this scenario.

Q14: Costs

If the CEN standard is applied at IPs to address a particular parameter, the flexibility of gas flows may be impaired by other parameters or at other IPs.

Q15: Time (number of years)

We expect this to be ongoing.

Q16: Is this given scenario feasible for your segment/organisation/country?

No

PAGE 7: Page 7/8

Q17: Impacts

No impacts – this would be a continuation of the current approach.

Q18: Benefits/savings

None, relative to current approach.

Q19: Costs

None, relative to current approach.

Q20: Time (number of years)

We expect this to be ongoing.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

This scenario is feasible. There is no logical reason to change a system that has served the UK and Europe well. In 2005, the then Department of Trade and Industry determined Britain's current gas quality specifications should not change until 2020 at the earliest, as the cost of accommodating a broader gas quality range would be too high. Nothing has changed to affect this. It should be left to National Grid to determine what flexibility it has and ability to blend CO2 levels within the agreed specification. National Grid imposes a CO2 limit at entry to ensure that the integrity of its assets is not compromised and to ensure it can meet any exit requirements. These limits are not contained in GS(M)R and hence are not limited for safety reasons. National Grid should and does have the flexibility to agree different CO2 limits at some locations from the general specification of 2% but this can and should be done on a case by case basis and where it can be demonstrated that such flexibility is required. The system has worked well to-date and there is no valid reason to change. Similar to the UK's offshore environment, the composition of any new supply of natural gas, such as shale gas, is likely to vary, which will impact on processing and pipeline requirements, but not the consumer. Until we have sufficient data, which will take several years, this variation cannot be determined. To change to a new standard now would deter investment in a new industry which could be vital to the UK's future gas supplies. Quality specifications may well differ from pipeline to pipeline. They will and should evolve over time and will be impacted by varying supply sources, operational constraints and end user requirements.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTOSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

We do not agree that the INT TC should be amended – reference to the CEN standard is not necessary.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

As stated above, there should not be any reference to the CEN standard in the INT TC, so it should not be a 'default' rule.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

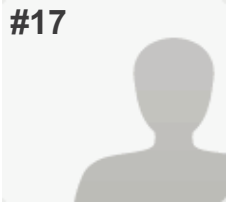
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

We support Scenario 4 – voluntary adoption.

#17



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

France

Q5: Which segment (s) of the gas value chain do you represent? [1]

Distribution system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

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Q7: Impacts

None for our segment

Q8: Benefits/savings

In this scenario the same gas quality requirements would be applied for all the gas chain. This is the most consistent scenario, that would allow a homogeneous gas quality (especially for the sulfur level for our segment)

Q9: Costs

No extra costs foreseen

Q10: Time (number of years)

Time of implementation for sensitive sectors should be long enough (5 years).

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 6: Page 6/8

Q12: Impacts

Respondent skipped this question

Q13: Benefits/savings

No benefits foreseen

Q14: Costs

Concerning the sulfur level : gas that doesn't meet the standard at storage exit would have an impact on the distribution grid (crystallization phenomenon) and extra-costs are predictable.

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

Respondent skipped this question

Q18: Benefits/savings

The scope of the EN 16726 standard is the whole gas chain, so it is preferable to apply it on the whole gas chain. This scenario wouldn't bring any benefit for our segment.

Q19: Costs

Respondent skipped this question

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOE?

Yes,

Comments

For the "Whole EU chain" scenario, off-spec gas should be allowed if infrastructure operators may agree less strict limits than those of the standard

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

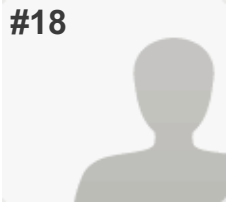
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#18



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

United Kingdom

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

IUK's pipeline connects transmission systems of two member states (with no other gas inputs direct from production facilities) so if the standard is applied to the whole chain, then any impact on IUK will depend on the position adopted by IUK's adjacent TSOs. The adjacent TSOs are responsible for the gas delivered and offtaken. IUK needs these operators to agree and apply compatible gas quality specifications. If the CEN standard is to apply, then IUK's preference is for the same specification to apply at each end its pipeline (which can be achieved by this "whole chain scenario" or "IPs only scenario").

Application of the standard in UK would require some changes to the current contractual specification that IUK has with National Grid for the Bacton IP and Fluxys for the Zeebrugge IP – particularly for oxygen and total sulphur. National Grid has indicated that if the CEN standard limits were to be applied in their whole network, then this could cause a reduction in gas supplies flowing into their system from upstream production.

Q8: Benefits/savings

No benefit to IUK assuming the continued application of the same gas quality specification at each end of IUK's pipeline, but this can be achieved by the other scenarios as well.

Q9: Costs

None to IUK if it is assumed that any required changes to gas quality conditioning equipment are made by the adjacent TSOs or producers.

Q10: Time (number of years)

IUK is unable to quantify this.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

However, this is subject to IUK's adjacent TSOs, and the other scenarios are also feasible and probably easier to implement. However, IUK is not in favour of adopting the CEN standard into the INT NC.

PAGE 6: Page 6/8

Q12: Impacts

As per scenario 1 (Q7), application of the standard would require some changes to the current contractual specification that IUK has with National Grid at IUK's Bacton IP in the UK and with Fluxys for the Zeebrugge IP in Belgium – particularly for oxygen and total sulphur. National Grid has indicated that further network analysis will be required to check if the CEN standard limits can be applied at the interface with IUK's system.

Less flexibility in the range of gas that can be transported could lead to curtailment of flows.

Q13: Benefits/savings

No benefit to IUK assuming the continued application of the same gas quality specification at each end of IUK's pipeline.

Q14: Costs

None for IUK as it is assumed that the adjacent operators will deliver and accept gas of the same specification meeting the CEN standard.

Q15: Time (number of years)

Not applicable to IUK, but may depend on adjacent operators.

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

IUK is not in favour of adopting the CEN standard into the INT NC, but if this goes ahead at the IPs only, then IUK would prefer the standard to be applied as the primary arrangement as we believe this gives the adjacent TSOs more flexibility. It is not clear from the refined "IPs only scenario" as described by ENTSOG above how it is proposed the CEN standard would interact with the existing INT NC Article 15 (see also answer to Q22).

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Q17: Impacts

Currently no cross border barriers exist on IUK's pipeline based on gas quality differences. However, if regulatory authorities in UK or Belgium or adjacent TSOs adopt differing positions and want to change specifications, then IUK may have difficulty agreeing to such revisions. IUK's aim is to maintain the same gas quality specification at each end of its pipeline. IUK hopes that the UK and Belgium authorities do not impose conflicting national legislation.

Q18: Benefits/savings

Continuation of current arrangements. INT NC Article 15 can be used if restrictions exist.

Q19: Costs

Currently IUK has no gas quality conditioning processes so if differing gas quality specifications were forced on IUK at each end of its pipeline, then IUK would have to consider investing in additional plant and equipment to maintain the current level of pipeline capacity, i.e. expenditure for no benefit. The increase in cost could mean that price of capacity would need to rise, possibly making IUK capacity uneconomical and potentially lead to a reduction in capacity being made available by IUK.

Q20: Time (number of years)

Not applicable unless IUK needs to invest in additional plant and equipment, then likely to be measured in years rather than months. Cannot be quantified without further analysis with the adjacent TSOs.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

This is effectively the current arrangement.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

Comments

It is not clear from Scenario 3, "IPs only", if ENTSOG is proposing that the CEN standard will apply. It seems a mixed description of using the current INT NC Article 15 as the primary arrangement and possibly only falling back to the CEN standard if the parties cannot agree. If the IPs only scenario is to be taken forward, then IUK would support the CEN standard being the primary arrangement with TSOs able to agree deviations by agreement as long as gas conditioning equipment exists to bring the specification back in line with the standard.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes,

Comments

IUK is not in favour of adopting the CEN standard into the INT NC, but if it is implemented, IUK would support referencing a set of fixed parameters that could only be changed in the NC following consultation.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments

See our answer to Q22. If the specification is to be applied at IPs only, then it should be the primary rule rather than a default.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

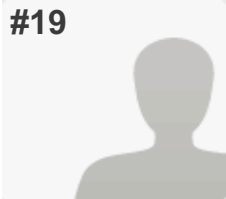
Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

IUK can see no material benefit of introducing the current CEN standard as a mandatory requirement. Arrangements have been in place for the past eighteen years to allow gas to successfully flow through IUK's pipeline, despite slightly different specifications applying within the transmission systems of the adjacent operators. Solutions have been arrived at without the need for a mandatory specification.



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

European interests (stakeholder association), please specify below

Comments

Individual IOGP members are active in multiple parts of the gas value chain: production, LNG supply activities, gas storage, gas transmission, marketing and consumption.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

Please also refer to the answers provided to the first public consultation.

Application of the CEN standard to the whole chain would eliminate the flexibility to apply less stringent limits at entry points as well as more stringent limits at end-user exit points. This could result in production shut-in of off-spec gas that is currently accepted and co-mingled with other gasses to provide on-spec gas to end-users. Also it could limit future new sources of indigenous production, the LNG supplies that can be imported and restrict the flow of gas across interconnectors; for example, application of the CEN standard to transmission networks might restrict gas flow on the UK-Ireland interconnector.

To illustrate the potential impact of production shut in, National Grid has determined that in 2015 approximately 15.9 bcm of gas with a CO₂ content above 2.5% or an O₂ content above 0.001% was delivered to the NTS. If this were to be shut in, it would represent a loss of well over € 2 billion in one year (using an approximate gas price of 15 €/MWh).

Q8: Benefits/savings

We expect no benefits at all. Moreover we have not seen any attempt to identify or substantiate possible benefits of amending the INT NC.

Q9: Costs

The costs to implement scenario 1 and overcome the economic and operational barriers are prohibitive. As an example we refer to the Final Modification Report on proposals 0498 and 0502 concerning modification of the Network Entry Provisions at UK Teeside System Entry Point to increase the CO2 limit from 2.9% to 4.0%. This report i.a. documents the costs and impacts of CO2 removal facilities and concludes that acceptance of the higher CO2 content is the most efficient solution. Legal issues are of another nature and should rule out the whole chain implementation option.

Q10: Time (number of years)

Implementation of scenario 1 would take considerable time in view of the implementation barriers. We believe there are barriers in terms of safety issues, economic barriers, operational issues and legal barriers. Economic barriers because of the welfare loss of e.g. shut-in of gas production. Operational issues related to the need to install gas quality measuring equipment and develop quality management procedures. Legal barriers because a whole chain implementation goes beyond the scope of the INT NC and even beyond the scope of Regulation (EC) 715/2009 and Directive 2009/73/EC.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible.

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Q12: Impacts

Please refer also to the answers provided to the first public consultation.

We understand that in the redefined scenario 3 the CEN standard will neither substitute nor act as a fall-back for article 15. Also, if adoption of the CEN standard comes out as the optimal solution TSOs will retain the flexibility to accept gas not meeting the standard at the IP where the standard is applied. Other entry and exit points in the system will not be affected in the redefined scenario 3. We believe that running a legislative process that will not lead to any material changes to the existing legislation cannot be justified. As highlighted in our response to other questions, the existing rules already allow TSOs to consider the CEN gas quality standard as a potential solution to gas quality cross-border issues. The added value of including a reference to the standard in article 15 of the INT NC would be zero.

By redefining scenario 3 ENTSOG has addressed the concerns raised in the first consultation that application at IPs would eliminate the flexibility to apply less stringent limits on a case-by-case basis where this could be beneficial to the efficient use of the system (and without compromising the safety of end-user appliances). However, there is a risk that by amending the INT NC the flexibility which ENTSOG now proposes will be reduced and might restrict gas flow across IPs. In addition, predefining the application of the CEN standard at IPs where there is a gas quality issue, even if subject to a cost/benefit analysis, may create tunnel-vision and predetermine a given suboptimal solution.

Q13: Benefits/savings

We do not expect benefits and have not seen evidence that identifies or substantiates possible benefits of amending the INT NC. We believe the mechanism as described in articles 15 and 19 of the network code is effective to solve gas quality issues at interconnection points – if they occur - without the need to make changes. Nothing prevents TSOs to consider whether an IP issue could be solved by adopting the CEN standard for the conflicting parameter together with retaining national specs.

Q14: Costs

We would be interested in the costs for the TSOs to implement this option because those costs will be passed on to the network users.

Q15: Time (number of years)

This question would be for the individual TSOs to answer.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible.

PAGE 7: Page 7/8

Q17: Impacts

Please also refer to the answers provided to the first public consultation.

The impact for scenario 4 is N/A under the condition that the INT NC is not amended.

Member States that wish to adopt the CEN standard on a voluntary basis should first conduct a thorough impact assessment and consider that application would eliminate the flexibility to apply less stringent limits at system entry points, including interconnection points. This could result in loss of flexibility to accept off spec gas on a case-by-case basis where this could be beneficial to the efficient use of the system (and without compromising the safety of end-user appliances). As an example, application of the CEN standard by either the UK or Ireland might restrict gas flow on the UK-Ireland interconnector.

Q18: Benefits/savings

N/A under the condition that the INT NC is not amended.

Member States that wish to adopt the CEN gas quality standard in their national legislation on a voluntary basis should first conduct a thorough impact analysis. We have not seen evidence that identifies or substantiates possible benefits of a voluntary adoption scenario.

Q19: Costs

N/A under the condition that the INT NC is not amended

Q20: Time (number of years)

N/A under the condition that the INT NC is not amended

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

This scenario reflects the existing situation under the condition that the INT NC is not amended.

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No,

Comments

The way the redefined scenarios have been defined is clear. This does not imply that we agree with the suggestion that the INT NC could be amended to implement scenario 1 and 3. IOGP would like to stress that the CEN gas quality standard was developed as a voluntary technical standard. The suggestion by the European Commission to make this standard legally binding raises a number of issues, in particular when the gas quality standard would be applied in a restrictive manner to reject gas outside the CEN

restrictive manner to reject gas outside the CEN standard:

- There is a lack of good quality historic data on the gas quality parameters of the CEN standard across the gas value chain. This makes it difficult to assess the full impact that application of the standard might have;
- Production of gas that does not meet the CEN standard could be shut-in while this gas can currently be accepted and co-mingled with other gasses to provide on-spec gas to end-users causing a substantial negative impact on producers. As an example, UK National Grid has determined that in 2015 approximately 13.8 bcm of gas with a CO₂ content above 2.5% was delivered to the NTS. In addition approximately 2.1 bcm of gas with an O₂ content above 0.001% was delivered to the NTS over this period. This evidence shows that if the CEN standard had applied in 2015 approximately 20% of UK supply would have been refused entry to the NTS;
- Application of the standard could also hamper the development of future indigenous sources of European production, both conventional and unconventional, that might not meet the standard;
- The CEN standard is tighter than the specifications that apply in many LNG sales and purchase agreements. Limits for total sulphur in these agreements are typically above the CEN limit of 20 mg/m³. The oxygen content may also cause issues. Pipeline specifications for gas delivered to LNG terminals in the USA often exceed the CEN standard. Enforcement of the CEN standard could act as a deterrent to LNG supply to the EU, in particular new sources of supply from the USA;
- Application of the standard could restrict the flow of gas across interconnections. As an example, gas in the UK-Ireland interconnector at times does not meet the CEN standard. This could result in a loss of flexibility and could be detrimental to the efficient use of the system;
- There is no legal basis for restricting the flow of gas on the basis of gas quality. The INT NC has a limited scope and primarily deals with cooperation between TSOs concerning common interconnection points. Gas Quality is not mentioned as a subject for which the Commission is authorised to develop a network code under Regulation (EC) 715/2009. Moreover, we believe it would go beyond the scope of Directive 2009/73/EC to set binding rules for the quality of natural gas to be accepted in the EU;
- Gas quality standards are important to ensure the safety (and efficiency) of end-user appliances. We fully understand the concerns of end-users about gas quality at their offtake point, but application of gas quality standards further upstream of the exit point reduces the flexibility of the system to manage gas quality by co-mingling or blending and will increase the overall costs in the value chain. End-user concerns about variations in gas quality over a short period of time are also very valid, but those issues need to be solved locally and not through the INT NC;
- The most efficient solutions to gas quality issues would give the TSOs a role (and incentive) where they can use the flexibility of the transmission system for co-mingling and blending. However, the responsibility of TSOs with respect to gas quality has not been

defined in EU legislation, and this cannot simply be created through an amendment of the INT NC.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

We do not agree with amendment of the INT NC. Under the mechanism as described in articles 15 and 19 of the network code there is nothing that prevents TSOs to consider whether an IP issue could be solved by adopting the 2015 version of the CEN standard for the conflicting parameter or any revision of the CEN standard. This would be another reason not to select scenario 3.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

We do not agree with amendment of the INT NC. Under the mechanism as described in articles 15 and 19 of the network code there is nothing that prevents TSOs to consider whether an IP issue could be solved by adopting the CEN standard for the conflicting parameter. We have not seen evidence for situations where TSOs have not been able to reach agreement on a solution. This question therefor seems to be a hypothetical one. In theory there could be a situation where TSOs do not reach agreement. In such a case the TSOs must have good reasons why application of the CEN standard, whether as a default rule or not, is not a solution to the issue. Moreover, predefining the application of the CEN standard at IPs where there is a gas quality issue as a default rule, even if subject to a cost/benefit analysis, may create tunnel-vision and predetermine a given suboptimal solution.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

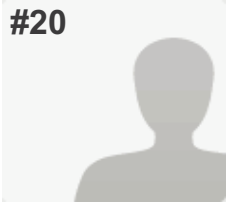
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

We support ENTSOG's redefined scenario 4 proposal not to amend the INT NC.

#20



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

PAGE 5: Page 5/8

Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

Q9: Costs

Not possible to verify exactly but substantially lower than in other Scenarios.

Q10: Time (number of years)

Several years

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 6: Page 6/8

Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling. As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.

Q14: Costs

Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility . For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

Several years

Q16: Is this given scenario feasible for your segment/organisation/country?

No

PAGE 7: Page 7/8

Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

If the status quo remains, we expect no benefit.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current Situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Comments
The question is a little bit unclear. If CEN Standard or single Parameters of it would be binding at IPs ("at IPs only scenario") why should it function as a default rule at the same time?

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Total sulfur without odorant, Other,
What would be the value proposed? Can you provide evidence for that?
Also Total sulfur with odorant and the Wobbe-Index

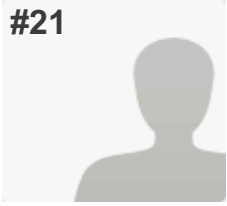
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#21



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Non-EU Member State, please specify below ,

European interests (stakeholder association), please specify below

,

Comments

ExxonMobil and its affiliates are longstanding participants in the European gas business, with activities across the gas supply value chain in multiple EU Member States, and other non-EU Member State countries.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production,

Other (please specify below)

ExxonMobil and its affiliates are longstanding participants in the European gas business, with activities across the gas supply value chain in multiple EU Member States, and other non-EU Member State countries.

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

Please also refer to the answers provided to the first public consultation.

Application of the CEN standard to the whole chain would eliminate the flexibility to apply less stringent limits at entry points as well as more stringent limits at end-user exit points. This could result in production shut-in of off-spec gas that is currently accepted and co-mingled with other gasses to provide on-spec gas to end-users. Also it could limit future new sources of indigenous production, the LNG supplies that can be imported and restrict the flow of gas across interconnectors; for example, application of the CEN standard to transmission networks might restrict gas flow on the UK-Ireland interconnector.

To illustrate the potential impact of production shut in, National Grid has determined that in 2015 approximately 15.9 bcm of gas with a CO₂ content above 2.5% or an O₂ content above 0.001% was delivered to the NTS. If this were to be shut in, it would represent a loss of well over € 2 billion in one year (using an approximate gas price of 15 €/MWh).

Q8: Benefits/savings

We expect no benefits at all. Moreover we have not seen any attempt to identify or substantiate possible benefits of amending the INT NC.

Q9: Costs

The costs to implement scenario 1 and overcome the economic and operational barriers are prohibitive. As an example we refer to the Final Modification Report on proposals 0498 and 0502 concerning modification of the Network Entry Provisions at UK Teeside System Entry Point to increase the CO₂ limit from 2.9% to 4.0%. This report i.a. documents the costs and impacts of CO₂ removal facilities and concludes that acceptance of the higher CO₂ content is the most efficient solution. Legal issues are of another nature and should rule out the whole chain implementation option.

Q10: Time (number of years)

Implementation of scenario 1 would take considerable time in view of the implementation barriers. We believe there are barriers in terms of safety issues, economic barriers, operational issues and legal barriers. Economic barriers because of the welfare loss of e.g. shut-in of gas production. Operational issues related to the need to install gas quality measuring equipment and develop quality management procedures. Legal barriers because a whole chain implementation goes beyond the scope of the INT NC and even beyond the scope of Regulation (EC) 715/2009 and Directive 2009/73/EC.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible.

Q12: Impacts

Please refer also to the answers provided to the first public consultation.

We understand that in the redefined scenario 3 the CEN standard will neither substitute nor act as a fall-back for article 15. Also, if adoption of the CEN standard comes out as the optimal solution TSOs will retain the flexibility to accept gas not meeting the standard at the IP where the standard is applied. Other entry and exit points in the system will not be affected in the redefined scenario 3. We believe that running a legislative process that will not lead to any material changes to the existing legislation cannot be justified. As highlighted in our response to other questions, the existing rules already allow TSOs to consider the CEN gas quality standard as a potential solution to gas quality cross-border issues. The added value of including a reference to the standard in article 15 of the INT NC would be zero.

By redefining scenario 3 ENTSOG has addressed the concerns raised in the first consultation that application at IPs would eliminate the flexibility to apply less stringent limits on a case-by-case basis where this could be beneficial to the efficient use of the system (and without compromising the safety of end-user appliances). However, there is a risk that by amending the INT NC the flexibility which ENTSOG now proposes will be reduced and might restrict gas flow across IPs. In addition, predefining the application of the CEN standard at IPs where there is a gas quality issue, even if subject to a cost/benefit analysis, may create tunnel-vision and predetermine a given suboptimal solution.

Q13: Benefits/savings

We do not expect benefits and have not seen evidence that identifies or substantiates possible benefits of amending the INT NC. We believe the mechanism as described in articles 15 and 19 of the network code is effective to solve gas quality issues at interconnection points – if they occur - without the need to make changes. Nothing prevents TSOs to consider whether an IP issue could be solved by adopting the CEN standard for the conflicting parameter together with retaining national specs.

Q14: Costs

We would be interested in the costs for the TSOs to implement this option because those costs will be passed on to the network users.

Q15: Time (number of years)

This question would be for the individual TSOs to answer.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible.

PAGE 7: Page 7/8

Q17: Impacts

Please also refer to the answers provided to the first public consultation.

The impact for scenario 4 is N/A under the condition that the INT NC is not amended.

Member States that wish to adopt the CEN standard on a voluntary basis should first conduct a thorough impact assessment and consider that application would eliminate the flexibility to apply less stringent limits at system entry points, including interconnection points. This could result in loss of flexibility to accept off spec gas on a case-by-case basis where this could be beneficial to the efficient use of the system (and without compromising the safety of end-user appliances). As an example, application of the CEN standard by either the UK or Ireland might restrict gas flow on the UK-Ireland interconnector.

Q18: Benefits/savings

N/A under the condition that the INT NC is not amended.

Member States that wish to adopt the CEN gas quality standard in their national legislation on a voluntary basis should first conduct a thorough impact analysis. We have not seen evidence that identifies or substantiates possible benefits of a voluntary adoption scenario.

Q19: Costs

N/A under the condition that the INT NC is not amended.

Q20: Time (number of years)

N/A under the condition that the INT NC is not amended.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

This scenario reflects the existing situation under the condition that the INT NC is not amended.

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No,

Comments

The way the redefined scenarios have been defined is clear. This does not imply that we agree with the suggestion that the INT NC could be amended to implement scenario 1 and 3. We would like to stress that the CEN gas quality standard was developed as a voluntary technical standard. The suggestion by the European Commission to make this standard legally binding raises a number of issues, in particular when the gas quality standard would be applied in a restrictive manner to reject gas outside the CEN standard:

- There is a lack of good quality historic data on the gas quality parameters of the CEN standard across the gas value chain. This makes it difficult to assess the full impact that application of the standard might have;
- Production of gas that does not meet the CEN standard could be shut-in while this gas can currently be accepted and co-mingled with other gasses to provide on-spec gas to end-users causing a substantial negative impact on producers. As an example, UK National Grid has determined that in 2015 approximately 13.8 bcm of gas with a CO₂ content above 2.5% was delivered to the NTS. In addition approximately 2.1 bcm of gas with an O₂ content above 0.001% was delivered to the NTS over this period. This evidence shows that if the CEN standard had applied in 2015 approximately 20% of UK supply would have been refused entry to the NTS;
- Application of the standard could also hamper the development of future indigenous sources of European production, both conventional and unconventional, that might not meet the standard;
- The CEN standard is tighter than the specifications that apply in many LNG sales and purchase agreements. Limits for total sulphur in these agreements are typically above the CEN limit of 20 mg/m³. The oxygen content may also cause issues. Pipeline specifications for gas delivered to LNG terminals in the USA often exceed the CEN standard. Enforcement of the CEN standard could act as a deterrent to LNG supply to the EU, in particular new sources of supply from the USA;
- Application of the standard could restrict the flow of gas across interconnections. As an example, gas in the UK-Ireland interconnector at times does not meet the CEN standard. This could result in a loss of flexibility and could be detrimental to the efficient use of the system;
- There is no legal basis for restricting the flow of gas on the basis of gas quality. The INT NC has a limited scope and primarily deals with cooperation between TSOs concerning common interconnection points. Gas Quality is not mentioned as a subject for which the Commission is authorised to develop a network code under Regulation (EC) 715/2009. Moreover, we believe it would go beyond the scope of Directive 2009/73/EC to set binding rules for the quality of natural gas to be accepted in the EU;
- Gas quality standards are important to ensure the safety (and efficiency) of end-user appliances. We fully understand the concerns of end-users about gas

quality at their offtake point, but application of gas quality standards further upstream of the exit point reduces the flexibility of the system to manage gas quality by co-mingling or blending and will increase the overall costs in the value chain. End-user concerns about variations in gas quality over a short period of time are also very valid, but those issues need to be solved locally and not through the INT NC;

- The most efficient solutions to gas quality issues would give the TSOs a role (and incentive) where they can use the flexibility of the transmission system for co-mingling and blending. However, the responsibility of TSOs with respect to gas quality has not been defined in EU legislation, and this cannot simply be created through an amendment of the INT NC.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Comments
We do not agree with amendment of the INT NC. Under the mechanism as described in articles 15 and 19 of the network code there is nothing that prevents TSOs to consider whether an IP issue could be solved by adopting the 2015 version of the CEN standard for the conflicting parameter or any revision of the CEN standard. This would be another reason not to select scenario 3.

Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,
Comments
We do not agree with amendment of the INT NC. Under the mechanism as described in articles 15 and 19 of the network code there is nothing that prevents TSOs to consider whether an IP issue could be solved by adopting the CEN standard for the conflicting parameter. We have not seen evidence for situations where TSOs have not been able to reach agreement on a solution. This question therefor seems to be a hypothetical one. In theory there could be a situation where TSOs do not reach agreement. In such a case the TSOs must have good reasons why application of the CEN standard, whether as a default rule or not, is not a solution to the issue. Moreover, predefining the application of the CEN standard at IPs where there is a gas quality issue as a default rule, even if subject to a cost/benefit analysis, may create tunnel-vision and predetermine a given suboptimal solution.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Other,
What would be the value proposed? Can you provide evidence for that?
(comment to answer 25) We do not believe the possible revision of the CEN standard is within the scope of the ENTSOG task. This does not imply agreement with the CEN standard.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

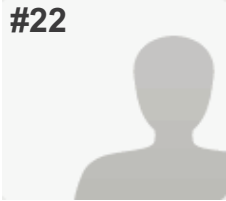
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

We support ENTSG's redefined scenario 4 proposal not to amend the INT NC.

#22



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Belgium, Bulgaria, Czech Republic, Finland, France, Germany, United Kingdom, Poland, The Netherlands, Italy, Hungary, Greece

Q5: Which segment (s) of the gas value chain do you represent? [1]

Industrial equipment manufacturer/end user

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Q6: Rank the scenarios in order of preference

Respondent skipped this question

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Q7: Impacts

In the first public consultation, IFIEC and CEFIC had seen the whole chain applying to a regional chain from entry to exit. In this consultation whole chain refers to the whole EU chain. Apart from the Wobbe Index end-users can agree on a general European gas quality standard, however regional exceptions should be allowed in case they are beneficial for all parties in the chain. National requirements/network codes can deviate from common practice ('typical' gas quality) and can enforce parameters not included in the standard, e.g. Wobbe Index, sulfur in end-use (also for end users directly connected to TSOs), hydrogen and any other. These national rules will not safeguard the interest of national end users because the specifications of existing national regulations and netcodes are often much too wide and/or based on the 'out-dated' CBP of EASEEgas. Exposure on these wide ranges can have serious safety risks for appliances, lower (energy) efficiency and higher NOx emissions and higher costs.

Q8: Benefits/savings

No benefits nor savings are foreseen.

Q9: Costs

Mitigation measures against too wide ranges to mitigate risks could lead to high extra costs.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments
answer is NO This scenario will not provide the required limitations and legal guarantees for exit points of (eligible) end consumers.

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Q12: Impacts

In case only restriction to cross-border trade are recognised, without taken the implications at exits into account, end users are still exposed to specifications and/or Wobbe Index ranges that could seriously harm the interests of (eligible) end consumers, including the risks in case national legislation will be the default situation (see answer 7).

Q13: Benefits/savings

No benefits nor savings are foreseen.

Q14: Costs

Mitigation measures against too wide ranges to mitigate risks could lead to high extra costs.

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments
answers is no This scenario will not provide the required limitations and legal guarantees for exit points of (eligible) end consumers.

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Q17: Impacts

In addition to answer 7, voluntary adoption could lead to different national regulations with even more uncertainty and risks and/or infringement on European competitive level playing field.

Q18: Benefits/savings

No benefits nor savings are foreseen.

Q19: Costs

Mitigation measures against too wide ranges to mitigate risks could lead to high extra costs.

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

No answer is NO This scenario will not provide the required limitations and legal guarantees for exit points of (eligible) end consumers.

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

Yes,

Comments

We would have appreciated to specify the role of TSO's including gas treatment options.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Respondent skipped this question

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Oxygen, Carbon dioxide, Methane number, What would be the value proposed? Can you provide evidence for that?
Oxygen Carbon dioxide Methane number We will not mention values.

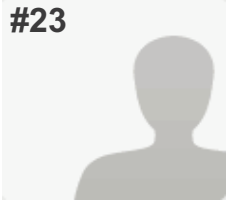
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Comments N.A.

#23



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Spain

Q5: Which segment (s) of the gas value chain do you represent? [1]

LNG terminal operator, Storage operator,
Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

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Q7: Impacts

If Operators did not agree less strict limits, at the entry point from Marocco (Tarifa Import Point) The interconnection agreements would have to be re-negotiated.
There may be a risk in the operation. Assuming that operators are allowed to agree less strict limits. A consumer may design their facilities to operate within the limits set by the CEN standard, afterwards, the operators may agree to accept gas out of specs (due to the less strict limits), and this gas (out of specs) arrives to the facilities of the consumer that are designed for within-the-specs gas. That would be a risk for the consumer/operator.

Q8: Benefits/savings

Full harmonization. Higher degree in the control of gas quality - understanding that the ranges defined by CEN are good, the quality levels received by every operator would be improved. There is no market benefit expected.

Q9: Costs

At Tarifa IP, the cost have not been estimated, but it means the treatment of around 15 bcm of gas a year.

Q10: Time (number of years)

between 3 and 5 years, depending on the permitting phase.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

This would imply the re-negotiation of interconnection agreements. The fact that the standards have to be implemented at the IP would determine the split of flows between the two IPs at the interconnection. As long as the CEN standards are applied only as an additional solution to the INT NC mechanisms, there would not be significant barrier.

Q13: Benefits/savings

This would allow retaining the national specifications for the full chain, so no investment would be necessary. Assuming that the CEN standards are applied only as an additional solution to the INT NC mechanisms, the existing agreements between TSOs could remain, so there would not be any problem, as there would be no need to apply the default rule.

Q14: Costs

If the CEN standards are applied only as a default rule, and the INT NC mechanisms prevail would not imply additional costs. In any other case, it would cost the same as in the Whole Chain scenario (At Tarifa IP, the cost have not been estimated, but it means the treatment of around 15 bcm of gas a year.)

Q15: Time (number of years)

If the CEN standards are applied only as a default rule, and the INT NC mechanisms, no time. In any other case, it would cost the same as in the Whole Chain scenario (from 3 to 5 years).

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

Depending on how it was implemented, there would be some negative impacts or others. Potentially any of the negative impacts of the previous scenarios could happen. Assuming that no one implements it, there would be no impact, but if the neighbouring countries do implement it – no matter that it is not implemented in Spain – it would have the same impact as any of the previous scenarios.

Q18: Benefits/savings

This scenario is too open. Depending on which countries would decide to implement the standard or which countries wouldn't (if a block), this scenario could have the benefits of the previous scenarios but limited to a certain area. There is a problem with the voluntary implementation, as it would necessarily need a negotiation between neighbouring countries, in a way that globally it has coherence. If each country implemented it independently, without any coordination with the neighbours, this scenario would have no benefits.

Q19: Costs

Assuming that no one implements it, there would be no impact, but if the neighbouring countries do implement it – no matter that it is not implemented in Spain – it would have the same cost as any of the previous scenarios.

Q20: Time (number of years)

Assuming that no one implements it, there would be no impact, but if the neighbouring countries do implement it – no matter that it is not implemented in Spain – it would have the same implementation time as any of the previous scenarios.

Q21: Is this given scenario feasible for your segment/organisation/country? Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG? Yes,
Comments
Whole chain scenario: Any gas not meeting the standard may be accepted by the TSOs upon its own criteria/responsibility.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach? Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution? Yes

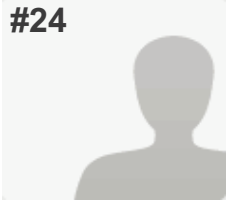
Q25: Would you recommend the revision of the current requirements of the CEN standard? No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition? Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose? Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")? Yes,
Comments
We are aware that the Madrid Forum has concluded not to amend the code for the time being. Nevertheless, we understand that if the revision of the standard is done, with the inclusion of the Wobbe Index, the code should be amended for its inclusion.

#24



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Denmark

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

The application of the standard in the whole chain will increase the cost of injecting biomethane into the grid due to requirements for oxygen.

The requirement for methane number will reduce the immediate security of supply for the Danish and Swedish market that is based partly on a source in the Danish North Sea with a gas with low methane number. To keep the security of supply an increased cost for security of supply may be the outcome.

Q8: Benefits/savings

There are no apparent benefits since it leaves very little flexibility for the stakeholders to use the gas system most efficiently as it is being used today.

Q9: Costs

The cost to meet the requirement for oxygen may have a negative decisive impact on the business case of the biomethane producers connected to the gas system.

To keep the security of supply an increased cost for security of supply may be the outcome.

Q10: Time (number of years)

>10 years.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

It will be a barrier for the de-carbonisation of the gas.

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Q12: Impacts

The existing system of bilateral agreements supported by the NC INT in the non-amended version is preserved. This in combination with active participation from NRA's will hopefully ensure that actual problems are solved in the most efficient manner based on a cost-benefit analysis.

On the other hand the technically non-justified limit for oxygen at networks at underground storages will be a discussion point leading to a not optimal decision. The objectivity and technical dedication of the involved parties contributing to the cost-benefit study will be crucial for an effective solution.

Q13: Benefits/savings

The scope of application at IPs only ensures that the bilateral agreed solutions might be able to solve any cross-border gas quality barriers in the most efficient way.

Q14: Costs

None, if the parties doing the cost-benefit analysis do participate actively instead of passively referring to the CEN standard.

Q15: Time (number of years)

1-2 year

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

The existing system of bilateral agreements supported by the NC INT in the non-amended version is preserved. This in combination with active participation from NRA's will hopefully ensure that actual problems are solved in the most efficient manner based on a cost-benefit analysis.

Q18: Benefits/savings

The voluntary adoption will ensure that actual problems are solved in the most efficient manner.

Q19: Costs

None

Q20: Time (number of years)

0 years

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes,

Comments

The EN 16726 was developed and approved by an election in CEN as a voluntary standard. No parties that was a part of the process was informed that the standard could be binding via the NC INT. The standard should not have been suggested to be a part of NC INT.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

There is a small risk that some TSOs may seek the standard's limits due to the lack of dedication or the resources to do a cost-benefit analysis to find the most efficient solution.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Oxygen, Methane number,

What would be the value proposed? Can you provide evidence for that?

Oxygen: Suggested new limit: 0.1% as yearly average in transmission grids, 0.5%-1% in distribution grids if authorities and grid operators accept. Oxygen has no corrosive effect in systems without liquid water.

Underground gas storages are to our knowledge built for corrosive environment because both CO₂ and H₂S are corrosive in wet conditions. The risk of increased corrosion due to oxygen below 0.1% in underground storages is acceptable in a European gas system that will contribute to fulfil the political target of decarbonisation of the gas system. It is a question if the current limit in the standard is feasible to reach in a cleaning process Methane number: Suggested new limit: minimum 62. Yes, in Denmark and northern Germany the gas consumers have in almost 20 years received gas with a relative low methane number (62-75) compared to most of Europe. The local gas engine owners have handled this with technical skills by them self and the engine suppliers. The limit for the methane number as it is in the EN 16726 may restrict the supply from one gas source in the Danish North Sea, endangering the security of supply and adding extra cost for the Danish gas market without any technical justification.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

At IPs only

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

The EN 16726 was developed and approved by an election in CEN as a voluntary standard. No parties that was a part of the process was informed that the standard could be binding via the NC INT. The standard should not have been suggested to be a part of NC INT.

#25



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Hungary

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

With reference to our answers given for the 1st consultation (answers No.: 24,25,28,29,31) we would like to highlight the following negative impacts of scenario 1 (application of the CEN standard to the whole chain)

1. Investment requirements

In order to continue gas sales Hungarian gas producers have to carry out serious investment (e.g. new sweetening unit, and implementation of gas plants) with higher operational cost in the area of Gas Treatment.

2. Possible production shut-in may reduce the security of supply and increase the price of the gas

This scenario could result in the production shut-in on the area of off-spec gas that it is currently accepted. Domestic gas production shut-in on the area of off-spec gas could have the negative impact of this scenario, which could result a lower level of security in the supply of the affected region. The produced off-spec gas that is currently accepted will be forced out of the gas market. Possible production shut-in could increase the price in the affected region.

3. Financial difficulties

In Hungary there are economic and legal issues besides security of supply issues as well. Since the most production fields are in the tail period of their life cycle, the producers cannot invest in profitable way. Even if the required CAPEX is available, there are fixed prices stipulated by the law for a major part of Hungarian fields. The incomings deriving from the production of the domestic fields do not cover the costs and investments, therefore further investment requirements may cause a possible shut-in.

Q8: Benefits/savings

We cannot see any benefits at all.

We have not seen any attempt to identify or substantiate possible benefits of the amendment of the Network Code on Interoperability and Data Exchange either. (Please see answer No. 23 to the first consultation).

This scenario may cause benefits for the producers of end user appliances only.

Q9: Costs

High estimated investment costs (e.g. at amine sweetening unit cca. 350 €/(m3/h) investment cost plus cca. 0,031 €/m3 operational cost). (Please see answer No. 26 to the first consultation).

Q10: Time (number of years)

Implementation of scenario 1 would take considerable time in view of the implementation barriers. At least 3 years will be needed for the implementation of the required investments (e.g. new sweetening unit, and implementation of gas plants).

Q11: Is this given scenario feasible for your segment/organisation/country?

No

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Q12: Impacts

With reference to our answers given for the 1st consultation (answer No.: 42,43,28,29,31) we would like to highlight the following negative impacts of scenario 3 (application of the CEN standard at IP's only)

1. Investment requirements

In order to continue gas sales Hungarian gas producers have to carry out serious investment in the area of Gas Treatment. New sweetening unit, and implementation of gas plants' modifications are expected to be in place if it does not occur, the domestic gas production may have to be shut-in.

2. Possible production shut-in may reduce the security of supply and increase the price of the gas in the region

In case application of the CEN standard at IPs would restrict the flow of gas it could have a negative impact on security of supply. In case application of the CEN standard at IPs would restrict the flow of gas it could have an impact on the gas price in the affected region.

3. Financial difficulties

In Hungary there are economic issues, legal issues besides security of supply issues as well.

Since the most production fields are in the tail period of their life cycle the producers can't invest in profitable way. Even if the required CAPEX is available there are fixed prices stipulated by the law for major part of Hungarian fields. The incomings deriving from the production of the domestic fields do not cover the costs and investments, therefore further investment requirements may cause a possible shut-in.

There are barriers in terms of economic and operational issues.

Economic barriers because of possible restrictions to flow gas across interconnection points. Operational issues related to the need to install gas quality measuring equipment and develop quality management procedures.

In addition, we believe that running a legislative process that will not lead to any evident changes to the existing legislation is not reasonable. As highlighted in our response to other questions, the existing rules already allow TSOs to consider the CEN gas quality standards as a potential solution to gas quality cross-border issues. The added-value of including a reference to the standards in art.15 of the Network Code would be zero.

Q13: Benefits/savings

We do not expect any benefits and have not seen evidence that identifies or substantiates possible benefits of amending the Network Code on Interoperability and Data Exchange. We believe the mechanism as described in articles 15 and 19 of the network code is effective to solve gas quality issues at interconnection points – if they occur - without the need to make changes.

Q14: Costs

We would be interested in the costs for the TSOs to implement this option because those costs will be passed on to the network users.

Q15: Time (number of years)

The TSO could answer this question.

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

With reference to our answers given for the 1st consultation (answer no. 51, 55, 56, 58) we would like to highlight the following negative impacts of scenario 4 (voluntary adoption of the CEN standard).

One of the unintended consequences could be that voluntary adoption on a national basis to the whole chain would lead to the same negative impacts as a possible whole chain implementation. For example if TSO decides on the implementation of the standard, the standard shall be implemented by all other members of the chain, inter alia by the producers.

In Hungary the gas producers have to invest to be able to inject produced gas to high pressure gas system: e.g. to build a new sweetening unit, to implement gas plant modifications. If the required investment does not take place, the domestic gas production may result in a shut-in. A possible production shut-in could reduce supply to the affected region. Production shut-in could increase the price in the affected region. Furthermore it could result in that the produced off-spec gas that is currently accepted will be forced out of the gas market.

Q18: Benefits/savings

We do not expect benefits and have not seen evidence that identifies or substantiates possible benefits of a possible voluntary adoption scenario.

Q19: Costs

The costs to overcome the economic and operational barriers are prohibitive.

Q20: Time (number of years)

Minimum 3 years needed for the implementation of investments.

Q21: Is this given scenario feasible for your segment/organisation/country?

No

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

Yes,

Comments

A-deviations should be retained and shouldn't be withdrawn after the implementation period. A-deviations are part of the CEN standard as a non-binding technical standard. The purpose of the A-deviation is to ensure appropriate time to prepare for meeting requirements of the standard. The withdrawal of the A-deviations could undermine the legitimacy of the CEN standard itself. Besides of our primary intention described above, we would like to highlight that the CEN gas quality standard was developed as a voluntary technical standard. The suggestion made by the EC to make this standard legally binding raises a number of issues, in particular when the gas quality standard would be applied in a restrictive manner to reject gas outside the CEN standard:

- There is no legal basis for restricting the flow of gas on the basis of gas quality. The INT NC has a limited scope and primarily deals with cooperation between TSOs concerning common interconnection points. Gas Quality is not mentioned as a subject for which the Commission is authorised to develop a network code under Regulation (EC) 715/2009. Moreover, we believe it would go beyond the scope of Directive 2009/73/EC to set binding rules for the quality of natural gas to be accepted in the EU;
- Gas quality standards are important to ensure the safety (and efficiency) of end-user appliances. We fully understand the concerns of end-users about gas quality at their offtake point, but application of gas quality standards further upstream of the exit point reduces the flexibility of the system to manage gas quality by co-mingling or blending and will increase the overall costs in the value chain. End-user concerns about variations in gas quality over a short period of time are also very valid, but those issues need to be solved locally and not through the INT NC;
- The most efficient solutions to gas quality issues would give the TSOs a role (and incentive) where they can use the flexibility of the transmission system for co-mingling and blending. However, the responsibility of TSOs with respect to gas quality has not been defined in EU legislation, and this cannot simply be created through an amendment of the INT NC.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

What would be the value proposed? Can you provide evidence for that?
N/A because answer to question 25 is No

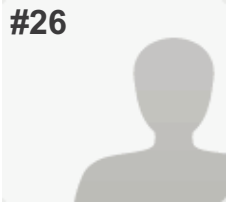
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#26



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Croatia

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

Respondent skipped this question

Q8: Benefits/savings

Respondent skipped this question

Q9: Costs

Respondent skipped this question

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

Respondent skipped this question

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Q12: Impacts	<i>Respondent skipped this question</i>
Q13: Benefits/savings	<i>Respondent skipped this question</i>
Q14: Costs	<i>Respondent skipped this question</i>
Q15: Time (number of years)	<i>Respondent skipped this question</i>
Q16: Is this given scenario feasible for your segment/organisation/country?	Yes

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Q17: Impacts	<i>Respondent skipped this question</i>
Q18: Benefits/savings	<i>Respondent skipped this question</i>
Q19: Costs	<i>Respondent skipped this question</i>
Q20: Time (number of years)	<i>Respondent skipped this question</i>
Q21: Is this given scenario feasible for your segment/organisation/country?	Yes

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	<i>Respondent skipped this question</i>
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	<i>Respondent skipped this question</i>
Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Oxygen, Carbon dioxide, Other

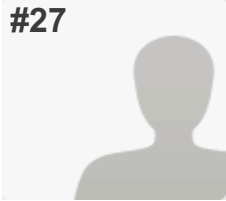
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Voluntary adoption

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Respondent skipped this question

#27



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

European interests (stakeholder association), please specify below

Comments

The European Biogas Association is representing its members from 25 countries. Our members are 36 National Organisations and 53 Companies – representing more than 7,000 stakeholders in Europe.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Power generation, Biomethane production

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

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Q7: Impacts

In our view this would be the best scenario however, only under the condition that flexible limits according to ENTSOG are applied.

Q8: Benefits/savings

The application of this scenario would make cross-border trade for biomethane easier

Q9: Costs

If reasonably (flexibly) applied this would not bring major additional cost. Already today biomethane is > 3 times more expensive than natural gas.

Q10: Time (number of years)

Full market introduction of biomethane might take another 30 years. But chances to go forward faster are better with a reliable non discriminatory system.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

We look at the system from the angle of biomethane only. Saying that, we prefer to not discuss EN 16726 alone but discussing it together with EN 16723-1 which includes e.g. sulphur values.

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Q12: Impacts

Allows an easy cross-border transport but would make biomethane injection into the DSO would be very difficult.

Q13: Benefits/savings

Respondent skipped this question

Q14: Costs

Respondent skipped this question

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

If binding, it would be easier for cross border biomethane trade

If not binding, the too tight injection limits of EN 16723-1 for biomethane could not be discussed with the local grid operator (DSO).

-> Make the values more reasonable for daily practice and declare the regulation as binding

Q18: Benefits/savings

Respondent skipped this question

Q19: Costs

Respondent skipped this question

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country? No

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSG? Yes

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach? Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution? Yes

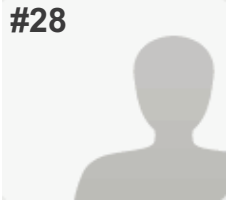
Q25: Would you recommend the revision of the current requirements of the CEN standard? Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition? Total sulfur without odorant, Oxygen, Carbon dioxide, Methane number, Other, What would be the value proposed? Can you provide evidence for that?
others: –, Wobbe Index (calorific value) –, CO
Oxygen: according to EN 16723-1 with 0.3 to 1 mg/m³ CO: 1-2% MN: 60 (as proposed by CEN TC 234 WG11 Wobbe Index: The proposed value of 14 – 15.2 kWh/m³ is too high for biomethane. Pure methane reaches only 13.38. A lower value of e.g. 12.5kWh/m³ would be more adequate. High CV's or WI makes it necessary to add propane of > 10% into a renewable gas!

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose? Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")? Yes

#28



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Austria

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator,
Distribution system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

Extra costs for unnecessary high quality standards and thus impact on competitiveness of gas as primary energy resource; Extra costs for modification to monitor ...

Q8: Benefits/savings

Harmonized EU market Harmonized quality on each IP – simplifies IPA

Q9: Costs

App. 2 Mio € (costs for TSO)

Q10: Time (number of years)

2-3 Years

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

In general yes – with the exception that stricter values for dew point do not have any value for segment/country

PAGE 6: Page 6/8

Q12: Impacts

Extra costs for unnecessary high quality standards and thus impact on competitiveness of gas as primary energy resource; Extra costs for modification to monitor ...

Q13: Benefits/savings

Harmonized EU market Harmonized quality on each IP – simplifies IPA.

Q14: Costs

1 Mio € (costs for the TSO)

Q15: Time (number of years)

2-3 Years

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

In general yes – with the exception that stricter values for dew point do not have any value for segment/country

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Q17: Impacts

This scenario is currently in place, no negative impacts expected.

Q18: Benefits/savings

No actions necessary

Q19: Costs

No additional costs

Q20: Time (number of years)

Already in place

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

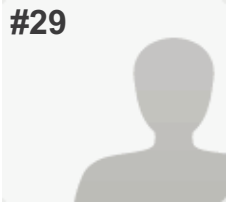
Comments

Already in place. The gas actually transported is compliant to all legacy contractual specifications.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	Yes, Comments Whole chain: excluding production on DSO level
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes, Comments the CEN standard should be binding for all IPs regarding this scenario
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Relative density, Total sulfur without odorant, Hydrogen sulfide + Carbonyl sulfide (as sulfur) , Oxygen, Hydro carbon dew point , Water dew point, Other, What would be the value proposed? Can you provide evidence for that? Following Wobbe Index Range is feasible in Austria (35 MJ/m ³ - 58 MJ/m ³ - operating range of the values compressors including a 10% fluctation)
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	Voluntary adoption
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	Yes

#29



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Poland

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

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Q7: Impacts

May have an impact on the cost of the gas and/or security of supply of some gas sources depending on the values of the parameters that are set up in the standard. May have an impact on how to make a standard legally binding for all the stakeholders through regulation that creates obligations only for TSOs.

Q8: Benefits/savings

Centralised gas treatment. Unified gas quality across EU. Producers responsible for gas quality.

Q9: Costs

to be determined by gas producers.

Q10: Time (number of years)

to be determined by gas producers

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

In case all the producers that bring gas to EU will implement the standard.

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Q12: Impacts

Standard might be one of the possible options to discuss when real problem to gas trade due to gas quality has been identified by the market.

Q13: Benefits/savings

Only necessary costs to be taken in line with CBA analysis.

Q14: Costs

to be defined case by case through CBA

Q15: Time (number of years)

5

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

Gas quality issues solved through implementation on the standard only where it is feasible and required.

Q18: Benefits/savings

No need of unnecessary treatment of gas on all IPs.

Q19: Costs

Respondent skipped this question

Q20: Time (number of years)

5

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG? No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	No, Comments May hamper the negotiations.
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Total sulfur without odorant, Hydrogen sulfide + Carbonyl sulfide (as sulfur) , Oxygen, Carbon dioxide, Hydro carbon dew point , Water dew point, Other, What would be the value proposed? Can you provide evidence for that? Hydrogen content
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	Whole EU chain
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	No

#30



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	2
At IPS	3
Voluntary adoption	1

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Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Regarding environmental issues the current CEN standard (EN 16726:2015) is less strict than national rules in Germany. The main problem is sulphur because this may cause higher emissions. Some parameters are missing which are needed for renewable gas injection.

Solutions for natural gas fuel stations and biogas production plants need to be found. Regarding natural gas fuel stations curtailment agreements between upstream grid operator and the natural gas fuel station operator could be possible. The upstream grid operator in case of too high sulphur content would need to inform the fuel station operator and the supply of the fuel station could be interrupted for a couple of hours. Longer interruptions would seriously damage the CNG-business. With CEN standard the sulphur content of CNG would be more than twice of the sulphur content of diesel fuel.

An absolute approach without possible exemptions would endanger the security of supply and the secure operation of the network.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

If the CEN standard is revised and contains useful parameters and values (maybe the least common denominator) this scenario would be feasible

Q9: Costs

Not possible to verify exactly. In case the TSO has not yet installed quality metering installations at all entry points, additional costs for metering installations. Additional costs for other parts of the value chain could occur if the standard is not revised.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Not if the CEN standard remains as it is. We should go one step back and discuss about the present values within the CEN standard themselves itself and what is the most feasible value of every parameter for the majority of Member States. Alternatively we could build regions like in the TYNDP for the CEN standard after surveying the current values of the gas quality in Europe. At the moment the data base for a proper analysis is insufficient.

Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling. As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards, which are more strict.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.
If the CEN standard is revised and contains useful parameters and values (maybe the least common denominator) this scenario would be feasible, but it would take more time than scenario 1.

Q14: Costs

Gas treatment installations for huge flows would be necessary if the CEN standard is not revised. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility . For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

Several years.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Not if the CEN standard remains as it is. We should go one step back and discuss about the present values within the CEN standard themselves and what is the most feasible value of every parameter for the majority of Member States. Alternatively we could build regions like in the TYNDP for the CEN standard after surveying the current values of the gas quality in Europe. At the moment the data base for a proper analysis is insufficient.

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Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

There would be no problem for biogas injection plants and natural gas fuel stations.

This scenario would not endanger the security of supply and the secure operation of the network.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

Yes, there should be a fixed version in the legal text and there should be an impact assessment before any change of the standard becomes legally binding. BUT: It should not be the version 2015 which is made legally binding first. The values have to be revised – This is necessary because now every stakeholder knows which consequence what value and parameter has. When the standard 2015 was developed over several years, nobody knew that this is the basis for a law. An impact assessment should be done within the CEN stakeholders while determining the values together with ENTSOG.

Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

The national specifications would remain more strict than the CEN standard. Therefore this rule would produce unnecessary costs. Proposal: In case of a default rule we prefer to make a local impact assessment to give the network users the possibility to give their view on the gas quality they need. If a network user wants to get a specific gas quality he has to pay for the conditioning and not all network user. In our understanding this is the status quo of the NC INT.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Relative density, Total sulfur without odorant, Other, What would be the value proposed? Can you provide evidence for that?

Total sulfur with odorant, Wobbe index, Hydrogen In our view it is necessary to get knowledge about the current values of the gasflows in Europe for all these parameters. For GCV and Wobbe Index the NC INT already contains guidelines for forecasting – why not for all the other values? If we knew the gas quality in Europe we could also create exceptions for some regions. Furthermore some regions may be identified as suitable for an earlier harmonisation of a set of gas quality parameters; and later the regions could cooperate more and more.

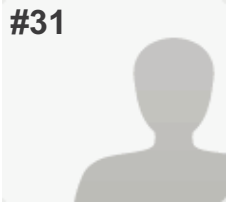
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#31



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No,
Comments
The responses below do not contain confidential information.

Q4: Which EU Member State do you represent?

United Kingdom,
Comments
Our members are producers and processors of gas from UK and Norwegian offshore fields and importers of LNG into UK regas terminals.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Upstream operator,
LNG terminal operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

As we set out in our submission to the first questionnaire, application of the CEN standard at all entry points would have the following damaging consequences for security of supply in NW European gas markets and would adversely affect upstream flexibility and the responsiveness of intra-EU cross-border gas trade:

- Restriction of flows (15.9 bcm in 2015) from existing developed offshore fields in the UK and Norway, principally due to the imposition of new limits of CO₂ and oxygen content
- Creation of a barrier to entry for LNG imports into all EU Member States since many sources of international LNG are not guaranteed to meet the sulphur and oxygen limits
- Less efficient arbitrage and cross-border trade between Member States, in particular between the UK and Ireland
- Economic impairment of future gas projects to develop known offshore UK gas resources

Q8: Benefits/savings

There are no discernible benefits from adopting the CEN standard in the INT NC.

Q9: Costs

The application of the CEN standard at all entry points would entail a significant increase in capital costs and operating costs to process what would become 'off spec' gas in order to allow gas to continue to be supplied from existing producing fields. In some terminal operations, these higher costs would be prohibitively high and could not be remunerated. The individual submissions from offshore gas producers in the UK and Norway and UK onshore terminal operators in the first questionnaire set out in some detail the expected financial costs and the loss of supply flexibility which would accompany the introduction of the CEN standard at all entry points.

In simple revenue terms, the loss of 15.9bcm of gas delivered to the NTS would represent a loss of revenue of > €2 billion per annum based on a wholesale market price of €15/MWh.

Q10: Time (number of years)

If this scenario were ever to be adopted, its implementation would take many years.

Q11: Is this given scenario feasible for your segment/organisation/country?

Comments

This scenario is not feasible or sensible. It is unnecessary, excessively costly and damaging to European security of supply and gas market functioning.

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Q12: Impacts

In this redefined scenario 3, we understand that adoption of the CEN standard is one possible course of action if a restriction on cross-border trade at an IP is identified and Article 15 of the INT NC has been invoked.

However, it is not clear from the re-definition of the scenario exactly what purpose is served by a reference to the CEN standard since TSOs already have the option to voluntarily adopt the CEN standard as their binding national standard.

The hypothetical problem identified in this scenario (a particular parameter at a particular IP) is very unlikely to be solved by the adoption of the CEN standard by the TSOs. It might even create unintended consequences for other parameters, or at other IPs. A case-by-case approach is more likely to deliver a least-cost solution to any gas quality-related barrier to trade.

We believe the recently-implemented INT NC should not be revised. There is no need to include a reference to the CEN standard in the INT NC. The Network Code should be allowed to work and it will gradually become apparent whether the existing articles 15 and 19 serve their intended purpose regarding gas quality.

Q13: Benefits/savings

We do not expect any benefits to arise from this scenario, which would mention the CEN standard in the INT NC but not make it binding, or give it any legal effect. If cross-border barriers to trade arise in future, articles 15 and 19 of the existing INT Network Code are sufficient to address the issue. In our view, there is no need to amend the INT NC and a weak mention of the CEN standard would serve no practical or legal purpose. Member States are already able voluntarily to adopt the CEN standard in their own national law and the proposed scenario 3 does not add anything to the current position.

Q14: Costs

The principal risk of adopting this scenario 3 is that in applying the CEN standard at IPs to address a particular parameter at a particular IPs, the flexibility of gas flows may be impaired by other parameters or at other IPs.

Q15: Time (number of years)

This is question for TSOs.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible in the UK

PAGE 7: Page 7/8

Q17: Impacts

This scenario is our preferred outcome since it leaves decisions over gas quality standards with national authorities who are best placed to make judgements which take proper account of consumer safety, security of supply and the proper regulatory and legal framework. Voluntary adoption of the CEN standard is by far the best option since it avoids the costs associated with making it binding in some manner in the EU Network Codes and avoids the loss of gas supply security and flexibility which underpins intra-EU cross-border trade.

Q18: Benefits/savings

We believe that the CEN standard should remain a technical standard for voluntary adoption by Member States, if they so wish. The benefit of voluntary adoption is that individual Member States can adapt their binding gas quality standards to the market conditions, the sources of supply available to them and the features of their downstream networks, consistent at all times with consumer safety. Cross-border issues are best addressed through TSO and NRA collaboration. Voluntary adoption does not itself confer any immediate benefit on EU gas markets since it simply retains the current 'status quo'. However, voluntary adoption will allow gas quality parameters to be revised more effectively and at lower cost in future if liberalisation and greater market integration bring changes to gas flows in parts of the EU.

Q19: Costs

There are no costs expected in maintaining voluntary adoption.

Q20: Time (number of years)

Not applicable

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

This is by far the best of the three revised scenarios presented in this second questionnaire.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No,

Comments

ENTSOG has defined the revised scenarios clearly.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

As we have stated in the first consultation and above in this submission, we do not agree that the INT NC should be amended. No reference to the CEN standard is needed or desirable.

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

We do not support the scenario 'At IPs only'. There should not be any reference to the CEN standard 2015 in the INT NC and it should not be introduced as default 'solution'.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

What would be the value proposed? Can you provide evidence for that?

No response since our answer to Q25 is 'no'.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

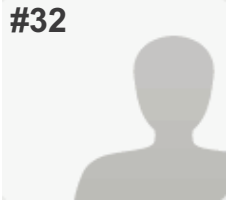
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

We support the 'voluntary adoption' scenario, i.e. no amendment to the existing INT NC.

#32



PAGE 2: Page 2/8

Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Hungary,

Comments

Hungarian Mining Association has nine producer members and two storage operator member. In our responds given to the questionnaire, the different opinions are visible.

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Storage operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

Producers:

With reference to our answers given for the 1st consultation (answers No.: 24,25,28,29,31) we would like to highlight the following negative impacts of scenario 1 (application of the Cen standard to the whole chain)

1. Investment requirements

In order to continue gas sales Hungarian gas producers have to carry out serious investment (e.g. new sweetening unit, and/or implementation of gas plants) with higher operational cost in the area of Gas Treatment.

2. Possible production shut-in may reduce the security of supply and increase the price of the gas

This scenario could result in the production shut-in on the area of off-spec gas that it is currently accepted. Domestic gas production shut-in on the area of off-spec gas could have the negative impact of this scenario, which could result a lower level of security in the supply of the affected region. The produced off-spec gas that is currently accepted will be forced out of the gas market. Possible production shut-in could increase the price in the affected region.

3. Financial difficulties

In Hungary there are economic and legal issues besides security of supply issues as well. Since the most production fields are in the tail period of their life cycle, the producers cannot invest in profitable way. Even if the required CAPEX is available, there are fixed prices stipulated by the law for a major part of Hungarian fields. The incomings deriving from the production of the domestic fields do not cover the costs and investments, therefore further investment requirements may cause a possible shut-in.

Q8: Benefits/savings

Producers

The producers cannot see any benefits at all: The producers have not seen any attempt to identify or substantiate possible benefits of the amendment of the Network Code on Interoperability and Data Exchange either. (Please see answer No. 23 to the first consultation). Producers opinion that the scenario may cause benefits for the producers of end user appliances only.

Storage operators

Storage operators believe that the sensitive parts of value chain are underground gas storages (reservoirs, wells and surface technologies) will be much more protected from corrosion and other technical problems due to introducing lower limits for CO₂, H₂S and O₂ content of natural gas.

Introduction of CEN standards for natural gas to be injected to underground gas storages provides the sustainability of the storage technology for a longer period and ensures reduction of probability of technical failures and accidents.

Therefore, security of gas supply will be significantly improved.

The introduction of CEN standard for injected gases the key for receiving back no off-spec gases all the time.

Q9: Costs

Producers: High estimated investment costs (e.g. at amine sweetening unit cca. 350 €/(m³/h) investment cost plus cca. 0,031 €/m³ operational cost). (Please see answer No. 26 to the first consultation).

Storage operators: There are no additional costs required from SSOs.

Q10: Time (number of years)

Producers: Implementation of scenario 1 would take considerable time in view of the implementation barriers. At least 3 years will be needed for the implementation of the required investments (e.g. new sweetening unit, and/or implementation of gas plants).

Storage operators: There is no time request from storage point of view.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Producers: No, the given scenario is not feasible.

Storage operators: Yes, it is feasible, but legal barriers (regulated, low gas price for gas producers) should be abolished.

Q12: Impacts

Producers: With reference to our answers given for the 1st consultation (answer No.: 42,43,28,29,31) we would like to highlight the following negative impacts of scenario 3 (application of the Cen standard at IP's only)

1. Investment requirements

In order to continue gas sales Hungarian gas producers have to carry out serious investment in the area of Gas Treatment. New sweetening unit, and implementation of gas plants' modifications are expected to be in place if it does not occur, the domestic gas production may have to be shut-in.

2. Possible production shut-in may reduce the security of supply and increase the price of the gas in the region

In case application of the CEN standard at IPs would restrict the flow of gas it could have a negative impact on security of supply. In case application of the CEN standard at IPs would restrict the flow of gas it could have an impact on the gas price in the affected region.

3. Financial difficulties

In Hungary there are economic issues, legal issues besides security of supply issues as well.

Since the most production fields are in the tail period of their life cycle the producers can't invest in profitable way. Even if the required CAPEX is available there are fixed prices stipulated by the law for major part of Hungarian fields. The incomings deriving from the production of the domestic fields do not cover the costs and investments, therefore further investment requirements may cause a possible shut-in.

There are barriers in terms of economic and operational issues.

Economic barriers because of possible restrictions to flow gas across interconnection points. Operational issues related to the need to install gas quality measuring equipment and develop quality management procedures.

In addition, we believe that running a legislative process that will not lead to any evident changes to the existing legislation is not reasonable. As highlighted in our response to other questions, the existing rules already allow TSOs to consider the CEN gas quality standards as a potential solution to gas quality cross-border issues. The added-value of including a reference to the standards in art.15 of the Network Code would be zero.

Storage operators:

We think that this scenario can't work alone with regard to storages. The main problem is the incumbent production.

Q13: Benefits/savings

Producers:

We do not expect any benefits and have not seen evidence that identifies or substantiates possible benefits of amending the Network Code on Interoperability and Data Exchange. We believe the mechanism as described in articles 15 and 19 of the network code is effective to solve gas quality issues at interconnection points – if they occur - without the need to make changes.

Q14: Costs

Producers:

We would be interested in the costs for the TSOs to implement this option because those costs will be passed on to the network users.

Q15: Time (number of years)

Producers: The TSO could answer this question.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Producers: NO, this scenario is not feasible.

Q17: Impacts

Producers: With reference to our answers given for the 1st consultation (answer no. 51, 55,56, 58) we would like to highlight the following negative impacts of scenario 4 (voluntary adoption of the Cen standard).

One of the unintended consequences could be that voluntary adoption on a national basis to the whole chain would lead to the same negative impacts as a possible whole chain implementation. For example if TSO decides on the implementation of the standard, the standard shall be implemented by all other members of the chain, inter alia by the producers.

In Hungary the gas producers have to invest to be able to inject produced gas to high pressure gas system: e.g. to build a new sweetening unit, and/or to implement gas plant modifications. If the required investment does not take place, the domestic gas production may result in a shut-in. A possible production shut-in could reduce supply to the affected region. Production shut-in could increase the price in the affected region. Furthermore it could result in that the produced off-spec gas that is currently accepted will be forced out of the gas market.

Storage operators: We are afraid of effectiveness of this method. Voluntary application of the CEN standard will not provide enough security for underground gas storages.

Q18: Benefits/savings

Producers: We do not expect benefits and have not seen evidence that identifies or substantiates possible benefits of a possible voluntary adoption scenario.

Q19: Costs

Producers: The costs to overcome the economic and operational barriers are prohibitive.

Q20: Time (number of years)

Producers: Minimum 3 years needed for the implementation of investments.

Q21: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Producers: NO Storage operators: No, concerning natural gas injection into UGSSs.

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

Yes,

Comments

Producers A-deviations should be retained and shouldn't be withdrawn after the implementation period. A-deviations are part of the CEN standard as a non-binding technical standard. The purpose of the A-deviation is to ensure appropriate time to prepare for meeting requirements of the standard. The withdrawal of the A-deviations could undermine the legitimacy of the CEN standard itself. Besides of our primary intention described above, we would like to highlight that the CEN gas quality standard was developed as a voluntary technical standard. The suggestion made by the EC to make this standard legally binding raises a number of issues, in particular when the gas quality standard would be applied in a restrictive manner to reject gas outside the CEN standard:

- There is no legal basis for restricting the flow of gas on the basis of gas quality. The INT NC has a limited scope and primarily deals with cooperation between TSOs concerning common interconnection points. Gas Quality is not mentioned as a subject for which the Commission is authorised to develop a network code under Regulation (EC) 715/2009. Moreover, we believe it would go beyond the scope of Directive 2009/73/EC to set binding rules for the quality of natural gas to be accepted in the EU;
- Gas quality standards are important to ensure the safety (and efficiency) of end-user appliances. We fully understand the concerns of end-users about gas quality at their offtake point, but application of gas quality standards further upstream of the exit point reduces the flexibility of the system to manage gas quality by co-mingling or blending and will increase the overall costs in the value chain. End-user concerns about variations in gas quality over a short period of time are also very valid, but those issues need to be solved locally and not through the INT NC;
- The most efficient solutions to gas quality issues would give the TSOs a role (and incentive) where they can use the flexibility of the transmission system for co-mingling and blending. However, the responsibility of TSOs with respect to gas quality has not been defined in EU legislation, and this cannot simply be created through an amendment of the INT NC.

Storage operators: We propose the partial application of INT NC regarding natural gas injection into underground gas storages with concern to upper limits of 3 gas quality parameters: H₂S = 5 mg/m³, CO₂ = 2,5%, O₂ = 10ppm.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments Producers: NO Storage operators: N/A

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

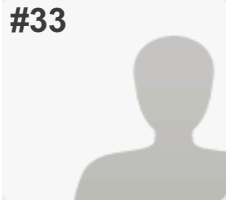
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

Producers: NO Storage operators: Yes, but only for gas injection into UGSs.

#33



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

France, Italy, Portugal, Spain

Q5: Which segment (s) of the gas value chain do you represent? [1]

Trader/shipper/supplier, Power generation

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

The introduction of a uniform stringent quality standard all along the value chain would affect both the internal EU gas market (in terms of investments needed and following costs to be recovered) but also the role of EU market as international gas hub. This is particularly true if we consider that the majority of EU Member States actually adopts less stringent standards, that in some cases can differ also more than 100% from those set in the CEN standard EN 16726 (i.e. maximum sulphure). Setting such tight standard would bring a strong discontinuity in respect to the current situation, discouraging imports from Third Countries with different gas quality standards, affecting (existing and future) commercial partnerships and, more in general, the ability of EU to attract gas from different routes/sources. The adoption of Scenario 1 would thus lead to:

- Loss of competitiveness in comparison with other international gas hubs: a narrow specification for gas quality may hinder the ability of EU to attract gas (also from new routes/sources) when competing with other hubs
- Possible reduction of gas supply diversification, with negative impact on security of supply.
- Renegotiation of LT supply contracts, since gas quality is one of the parameter that enters the contract (with both fixed values or ranges). From this perspective, it is important to remember that renegotiations are not cost-free and could lead also to negative outcomes (reduction of volumes; higher prices; interruption of the contract).
- Investment on network infrastructure with following increasing costs on network users and, finally, on end consumers.

Q8: Benefits/savings

Not specific benefits/savings

Q9: Costs

A standardization for the whole value chain could come only at high costs for all market actors and for the EU system as a whole. The costs are those associated with the above-mentioned impacts, namely: reduction of SoS as a consequence of a reduced international competitiveness and of a compromised ability to attract gas from different sources; investments and higher costs to be borne by the system; need of adapting existing supply contracts.

Q10: Time (number of years)

NA

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

This scenario is not feasible. In this sense, we welcome the Commission's announcement during the last Madrid Forum not to pursue legally binding provisions.

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Q12: Impacts

Given that the scenario 3 would affect only IPs between Member States, all the direct impacts related to imports and commercial relationship with Third Countries would be avoided. For the sake of clarity, it is clear that TSOs should not shift the burden of the standard implementation at IPs on shippers/traders, for instance, by making the standard binding also at all entry system points (also from Third Countries); a similar behaviour would in fact negatively affect imports (and the whole system) as already explained.

Q13: Benefits/savings

More harmonized framework at a lower cost than the first scenario

Q14: Costs

By requiring investments in infrastructure network at IPs, this option will lead to increasing system costs for network users and, in the end, for final customers

Q15: Time (number of years)

NA

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

In general terms the scenario is feasible, but in practice it's not the best solution as it can be applied only at high costs for the system (to recover TSOs' investments) without leading to a real harmonization across Countries (different national standard will continue to exist). The advantages in terms of cross-border trading can be reached without costs under the current regulatory framework (that is under scenario 4).

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Q17: Impacts

We do not see any specific impact coming from this scenario that is coherent with the current regulatory framework. Regulation (EU) 2015/703 already provides for proper rules to manage possible cross border trade restrictions due to gas quality

Q18: Benefits/savings

Avoiding costs and risks related to other options

Q19: Costs

We do not see specific costs related to this solution

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments As said, this is the best option

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No,

Comments

We support the refined scenario 4 (no amendment to the current regulatory framework)

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

No amendment to current INT NC is necessary

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

It's up to TSOs to find a solution in coherence with the principles set in INT NC

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

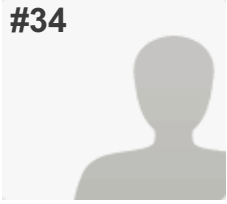
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#34



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Austria

Q5: Which segment (s) of the gas value chain do you represent? [1]

Storage operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

Binding CEN standard leads to extra Investments to meet the high Quality Standards and thus Impact on competitiveness of gas as Primary energy resource. Stricter values for e.g. dew point do not have any value for Segment/Country. Extra cost for Monitoring and cleaning.

Q8: Benefits/savings

Non

Q9: Costs

approximately 15 MEUR only for OMV Gas Storage

Q10: Time (number of years)

2-3 years

Q11: Is this given scenario feasible for your segment/organisation/country?

No

PAGE 6: Page 6/8

Q12: Impacts

Binding CEN standard leads to extra Investments to meet the high Quality Standards and thus Impact on competitiveness of gas as Primary energy resource. Stricter values for e.g. dew point do not have any value for Segment/Country. Extra cost for Monitoring and cleaning.

Q13: Benefits/savings

non

Q14: Costs

approximately 15 MEUR only for OMV Gas Storage

Q15: Time (number of years)

2-3 years

Q16: Is this given scenario feasible for your segment/organisation/country?

No

PAGE 7: Page 7/8

Q17: Impacts

non - as long as nothing will be is changed

Q18: Benefits/savings

non

Q19: Costs

non

Q20: Time (number of years)

already in place

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

Yes only, if the CEN Standard will not be implemented into the INT NC, neither for scenario "Voluntary adoption".

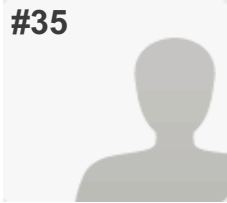
PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	No
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	No
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Total sulfur without odorant, Hydrogen sulfide + Carbonyl sulfide (as sulfur) , Mercaptan sulfur without odorant (as sulfur) , Carbon dioxide, Water dew point
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	Voluntary adoption
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	No, Comments Implementation of CEN standard in NC INT means: - no benefits - physical and safety risks - avoidable costs

#35



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	3
Voluntary adoption	2

PAGE 5: Page 5/8

Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

Q9: Costs

Not possible to verify exactly but substantially lower than in other scenarios. In case the TSO has not yet installed quality metering installations at all entry points, additional costs for metering installations.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to otherfuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling. As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.

Q14: Costs

Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility . For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

Several years.

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

If the status quo remains, we expect no benefit as the current legal unsecure situation will remain.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

It is for our organisation feasible but the problem of legal uncertainty is not solved.

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the “At IPs only scenario”, would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes,

Comments

question unclear: if CEN standard would be binding at IPs (“at IPs only scenario”) why should it function as a default rule at the same time?

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Total sulfur without odorant, Other,
What would be the value proposed? Can you provide evidence for that?
total sulfur with odorant, Wobbe index

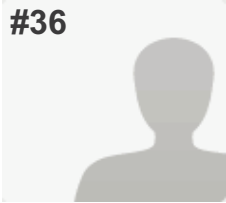
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#36



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Sweden

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

PAGE 5: Page 5/8

Q7: Impacts

The application of the standard in the whole chain will increase the cost of injecting biomethane into the grid due to requirements for oxygen.
The requirement for methane number will reduce the immediate security of supply for the Swedish market that is based partly on a source in the Danish North Sea with a gas with low methane number. To keep the security of supply an increased cost for security of supply may be the outcome.

Q8: Benefits/savings

We can't see any benefits.

Q9: Costs

The cost to meet the requirement for oxygen may have a negative decisive impact on the business case of the biomethane producers connected to the gas system.

Q10: Time (number of years)

More than 10 years.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments Increased costs for Biogas production.

PAGE 6: Page 6/8

Q12: Impacts

The existing well functional system of bilateral agreements supported by the NC INT in the non-amended version is preserved.

Q13: Benefits/savings

We can't see any benefits or savings.

Q14: Costs

None.

Q15: Time (number of years)

1 – 2 year.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments Increased costs for Biogas production.

PAGE 7: Page 7/8

Q17: Impacts

The existing well functional system of bilateral agreements supported by the NC INT in the non-amended version could be changed over time in order to serve the market and comply with the standard.

Q18: Benefits/savings

The voluntary adoption will ensure that actual problems are solved in the most efficient manner.

Q19: Costs

None.

Q20: Time (number of years)

0 years.

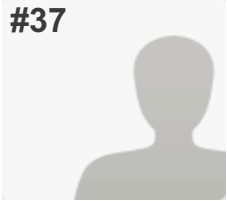
Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	No
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Oxygen, What would be the value proposed? Can you provide evidence for that? Oxygen: Suggested new limit: 0.5% as yearly average in transmission grids, 0.5%-1% in distribution grids if the grid operators accept.
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	At IPs only
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	Yes, Comments At IPs only.

#37



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Spain

Q5: Which segment (s) of the gas value chain do you represent? [1]

Other (please specify below) Association

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Q6: Rank the scenarios in order of preference

Respondent skipped this question

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Q7: Impacts

The CEN standard EN 16726 is more restrictive than the national legislation currently in force in Spain.

The implementation of this scenario implies additional barriers for existing and future gas supplies. Some gas entries would become off-spec gas.

A more restrictive gas quality specification, which could imply a reduction of the gas supply portfolio, would involve an important increase of gas prices in the whole gas chain and a negative impact on security of supply.

Additionally, this scenario would imply a renegotiation of long term supply contracts, since gas quality is one of the parameters that enters the contracts. From this perspective, it is important to remember that renegotiations are not cost-free and could lead also to negative outcomes (reduction of volumes; higher prices; interruption of the contract).

Q8: Benefits/savings

Full harmonization. Higher degree in the control of gas quality - understanding that the ranges defined by CEN are good, the quality levels received by every operator would be improved. There is no market benefit expected.

Q9: Costs

At any IP, the cost has not been estimated, but it means the treatment of several bcm of gas a year.

Q10: Time (number of years)

Construction of treatment facilities would take several years, depending on the permitting phase.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

The implementation could be feasible, but it may be difficult, as it could imply significant increases in the final gas price. We welcome the Commission's announcement during the last Madrid Forum not to pursue legally binding provisions on this matter.

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Q12: Impacts

This would imply the re-negotiation of interconnection agreements. The fact that the standards have to be implemented at the IP would determine the split of flows between the two IPs at the interconnection.

As long as the CEN standard is applied only as a default rule, and the INT NC mechanisms prevail, there would not be significant barriers. If the CEN standard prevailed over the INT NC mechanisms, the barriers would be the same as in the scenario 1 (Some gas entries would become off-spec gas).

This may be a problem regarding security of supply for countries downstream. It could happen that supplies entering one country aimed to a second country could not reach this second country if the quality does not allow through the IP. It should not be an issue, provided that operators are allowed to agree less strict limits.

Q13: Benefits/savings

This scenario would imply fewer constraints caused by the implementation of the CEN standard EN 16726.

This would allow retaining the national specifications for the full chain, except for interconnection points, so no investment would be necessary.

Assuming that the CEN standard is applied only as a default rule, and the INT NC mechanisms prevail, the existing agreements between TSOs could remain, so there would not be any problem, as there would be no need to apply the default rule. If the INT NC mechanisms do not prevail, the scenario 3 would be exactly the same as scenario 1, with the same benefits.

More harmonized framework at a lower cost than the scenario 1.

Q14: Costs

If the CEN standard is applied only as a default rule, and the INT NC mechanisms prevail, it would not imply additional costs. In any other case, it would cost the same as in the scenario 1.

Q15: Time (number of years)

If the CEN standard is applied only as a default rule, and the INT NC mechanisms prevail, the implementation would be immediate. In any other case, it would take the same time as in the scenario 1.

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

PAGE 7: Page 7/8

Q17: Impacts

We do not see any specific impact coming from this scenario that is coherent with the current regulatory framework. Regulation (EU) 2015/703 already provides for proper rules to manage possible cross border trade restrictions due to gas quality.

Q18: Benefits/savings

Avoiding costs and risks related to other options.

Q19: Costs

We do not see specific costs related to this solution.

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

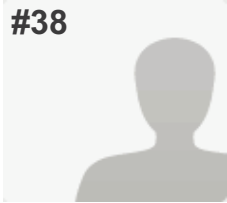
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#38



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

European interests (stakeholder association), please specify below

Q5: Which segment (s) of the gas value chain do you represent? [1]

Distribution system operator, Trader/shipper/supplier

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Q6: Rank the scenarios in order of preference

Whole EU chain

3

At IPS

2

Voluntary adoption

1

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Q7: Impacts

Per our previous consultation response, Members have identified the following issues in implementing this standard:

United Kingdom

If during calendar year 2015, NTS supplies were to have been restricted to:

- 2.5% CO2 content; and
- 0.001% O2 content

Then approximately 20% of UK supply would have been refused entry to the NTS.

Italy

In Italy, odorisation is mandatory via Italian law (1081/1971) and DSOs are obliged to reach the minimum concentration (32 mg/cm for THT, corresponding to 12,3 mg/cm of Sulphur; 9,3 mg/m3 for TBM , corresponding to 3,6 mg/m3 of S), in every point of the grid. To be sure to reach this concentration at the entry points the dosage of the odorants is much more (usually around 40-50 mg/cm for THT, corresponding to 15-19 mg/cm of Sulphur). Therefore the maximum content of 10 mg/cm of Sulphur from odorisation substances will conflict with this requirement on Italian DSOs.

Spain

The gas quality parameters included in gas long term contracts, to be in force at the time of implementation of the CEN Standard EN 16726, can exceed the range contemplated in the CEN Standard EN 16726

Poland

In accordance with the Minister of Economy Decree on detailed conditions of gas system operations of July 2, 2010, a gaseous fuel should fulfil certain quality requirements. Below there are presented those requirements which were defined more strictly in the Standard EN 16726 than in the Decree:

1. the total sulphur content should not exceed 40,00 mg/m3;
2. the temperature of the water dew point at a pressure 5,5 MPa should be:
 - a. from 1 April to 30 September no more than +3,7°C,
 - b. from 1 October to 31 March no more than -5°C.

The tightening of above parameters may cause the need to adapt to the requirements for gas transport, which will entail financial consequences.

Q8: Benefits/savings

Eurogas members have not identified any benefits or savings that that would arise as a result of implementing this standard.

Q9: Costs

Respondent skipped this question

Q10: Time (number of years)

It would seem inappropriate to apply a fixed timing for application given each Member State would need to take quite different steps to implement such a standard.

Furthermore, expedition of remedial measures will typically mean an increase in costs.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Our members have not identified any barriers that would be removed that the implementation of this scenario would address. Nor, are we aware of any barriers that this standard would resolve being identified by other parties in the first consultation process. On the other-hand, there are costs associated with its implementation. Therefore we would strongly question the benefit of implementing the standard under the conditions presented in this scenario.

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Q12: Impacts

The impacts of this scenario are difficult to define given the standard will be used on a case-by-case basis. This could result in additional investment costs. However, it does introduce an extra layer of administration with little material benefits accruing.

Q13: Benefits/savings

The resolution of gas quality problems, should they arise lend themselves to bespoke solutions, respecting the exact issues to be addressed, rather than this approach.

Furthermore, the process set out in Article 15 of the Interoperability and Data exchange network code provides the process necessary to resolve these issues.

Q14: Costs

The main costs here are the indirect ones pertaining to the resources needed to support the process to build this into legislation.

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

While this scenario is preferable to the previous one, we have not seen any evidence that would warrant its introduction. At the Entsog workshop in Cologne in September, the barriers that were presented were "potential barriers" or ones that would not be resolved by this standards implementation. As referred to earlier, we are not aware of any specific barrier to cross border trade that this standard would resolve. The process already enshrined in the Interoperability network code provides a mechanism that covers all gas quality issues, including those outside the scope of this network code. This should be the priority process for resolving any gas quality issues.

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Q17: Impacts

Member States would have a standard ready, to be used should they choose to implement it.

Q18: Benefits/savings

There is no unnecessary barriers to gas flows introduced.

Q19: Costs

No additional costs.

Q20: Time (number of years)

The standard can be introduced to case specific timetables.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

Other solutions might be more appropriate and the use of a default rule might hinder the negotiation process to find them.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Respondent skipped this question

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

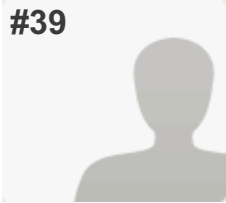
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#39



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Italy

Q5: Which segment (s) of the gas value chain do you represent? [1]

Distribution system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

The scenario gives responsibilities to DSOs which haven't the possibility to intervene in case the gas quality is outside the standard specifications.

Q8: Benefits/savings

No benefits.

Q9: Costs

More costs because every segment of the chain must have redundant instrumentations to check gas quality, because every segment will become responsible to the following segment.
More costs also if gas from national production must be treated to come into the new standard specifications.

Q10: Time (number of years)

10 years

Q11: Is this given scenario feasible for your segment/organisation/country?

Comments

More costs, more risks and no benefits. If a maximum level of sulphur from odorants would be stated, the given scenario will be not feasible.

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Q12: Impacts

Less flexibility than voluntary adoption.

Q13: Benefits/savings

Clearness of rules.

Q14: Costs

Not Known

Q15: Time (number of years)

Not known

Q16: Is this given scenario feasible for your segment/organisation/country?

Comments -

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Q17: Impacts

None.

Q18: Benefits/savings

Maximum flexibility pursuance.

Q19: Costs

Not known.

Q20: Time (number of years)

Not known.

Q21: Is this given scenario feasible for your segment/organisation/country?

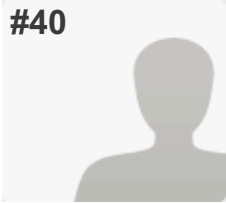
Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG? No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Comments -
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Other, What would be the value proposed? Can you provide evidence for that? Wobbe Index
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	At IPs only
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	No

#40



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Storage operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

PAGE 5: Page 5/8

Q7: Impacts

clear rules for all market participants

- massive increase of legal clarification security

- enabling of signed storage connection contracts on Interconnection Points between TSOs and SSOs by referring on a common European gas quality standard- improvement of shipper situation by a harmonised barrier-free market. Please also consider question 22.

An absolute approach without consideration of specific downstream situations and national legal framework, could led to changes in national existing market mechanisms e.g. Biogas injection and Hydrogen on regional level. For this reason infrastructure operators should be allowed to agree to less strict limits than those of the standard.

Q8: Benefits/savings

see 7

Q9: Costs

No comment

Q10: Time (number of years)

At least 2 yeary

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments
if infrastructure operators may agree less strict limits than those of the standard

PAGE 6: Page 6/8

Q12: Impacts

Enormous raise of transmission and storage risks and no defined downstream gas quality.

Q13: Benefits/savings

No benefit, because only on IPs. Of course it could help to agree Interconnection Agreements but without secured Entry and Exit specification on national level but also for storage operators, which are working with international connections it will be difficult to conclude new interconnection agreements.

Q14: Costs

No comment

Q15: Time (number of years)

not possible to estimate it

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

No free market will be established. No Interconnection agreements will be signed. No technical security for cross-border transmission/supply and storage will be exist.

Q18: Benefits/savings

We expect no benefit.

Q19: Costs

The costs will be an increased or at least equal uncertainty level at IPs, storages and the technical security of supply will decrease.

Q20: Time (number of years)

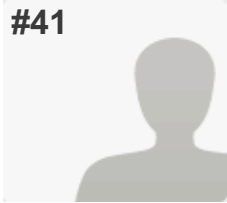
No duration needed.

Q21: Is this given scenario feasible for your segment/organisation/country?

No

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	Yes, Comments We propose a new scenario where the flanges at the side of the network users are also marked in blue colour, but not the consumers themselves. In contrast to the given scenario 1 that would mean for network users injecting gas in the TSO network (Storage, Production, LNG, Biomethane) that the injecting network user needs to ensure compliance of the gas with EN 16726 when transports to IPs are possible (injecting parties should be marked in blue). When withdrawing the gas from the TSO pipeline towards a directly connected network user the TSO would need to ensure compliance of the gas with the CEN standard, however infrastructure operators may agree less strict limits than those of the standard if necessary. The following advantages support this scenario: Save reliable transmission is enabled from IP to IP, Production to IP, LNG to IP, national injection and withdrawal from and to storages to IP and of course from IP to all downstream segments. Furthermore that offers the flexibility for national situations like renewable gas injection and consumption in regional grids which is still enabled like today. And of course in the main case the flow from European transmission systems to regional grids is guaranteed to EN 16726.
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes, Comments If there is an agreement found on Wobbe and Calorific value a new consultation should take place.
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes
Q25: Would you recommend the revision of the current requirements of the CEN standard?	No
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	<i>Respondent skipped this question</i>
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	Yes

#41



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

United Kingdom

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Upstream operator,
Trader/shipper/supplier, Power generation

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

Applying CEN standards on a mandatory basis in GB would have a highly negative impact on security of supply. Analysis undertaken by National Grid has shown that in 2015 20% of gas entering the NTS (at least 15.9 bcm of gas from UK and Norwegian sources) did not meet the lower CO₂ and oxygen limits which would apply under binding CEN standards. In certain scenarios (e.g. in a winter period when supplies are tight) this significantly raises the risk of wholesale price spikes and / or gas supply deficits. GB, and Europe more generally, is experiencing falling domestic reserves and as such the trend should be towards increasing flexibly to ensure demand can be met rather than limiting it. There are two recent examples where changes in GB gas quality standards have taken place or have been suggested in order to increase flexibility which would not be permitted under binding CEN standards. A proposal has been approved to permit a future increase in the CO₂ upper limit to 4% at a domestic Aggregate System Entry Point (4% already applies at some other entry points) and another has more recently been approved to allow an increase in oxygen content to 0.02 mol% to allow for gas imports from more suppliers in the LNG market (in particular US LNG). Being unable to do this due to CEN standards would result in limiting the supply sources available to GB and / or requiring certain gases to be processed prior to entering the grid which would increase costs to customers.

In addition to the negative impact on security of supply, applying the CEN Standard on a mandatory basis would have other impacts. We believe that reducing the number of sources from where gas can come (e.g. being locked into a supply standard is likely to limit new and developing supply sources such as LNG, biomethane and shale) would reduce market liquidity, competition and ultimately increase costs to customers. We also believe that gas-fired power stations would be impacted from a change in gas quality. From a GB perspective we have identified four areas of concern: 1. Gas turbine Combustion, 2. Emissions (increased CO₂, and therefore carbon cost), 3. Impact on HGP and Combustor components. 4. Impact on water steam cycle (economiser corrosion) from sulphur content increase.

Considering EU application more broadly, it is not clear to us how implementation would work at Interconnection Points with non-EU countries. Those countries in the EU would be obliged to adhere to the CEN Standards whilst the non-EU countries would not be obliged to adhere to the same Standards.

Q8: Benefits/savings

We have not identified any benefits or savings. In other words, a mandatory pan-EU gas spec along the lines considered would impose very major costs and risks but would not deliver any material benefits.

Q9: Costs

It is not possible for us to provide an industry-wide estimate of the costs associated with applying the CEN standards. However, it is likely to be significant (many hundreds of millions of Euros) and moreover application of the standard is likely to be unfeasible in many cases. By way of example, in GB in 2015 proposals were examined to allow an increased level of carbon dioxide into the National Transmission System at BP's Teeside System Entry Point. As part of the study into the proposals, the capital cost of an offshore amine unit for the removal of CO₂, was estimated at £180 million. There would also be additional opex and possible negative environmental impacts. Largely because of these costs, it was considered more efficient to permit gas to enter the network with an increased CO₂ content than to purchase the amine unit. In the event that CEN standards were applied, it is likely that the costs associated with this scenario would be replayed multiples of times across the EU.

Q10: Time (number of years)

Unknown. For the removal for carbon dioxide, >5 years.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

We can see no case for implementing the CEN standard when barriers to cross border trade arising from gas quality have not been identified. Furthermore, if such issues were identified, Article 15 in the current Interoperability code is insufficient to address these. We can only see detrimental impacts in such a proposal, with the potential for further unintended consequences

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Q12: Impacts

As with the other options proposed, it is not clear what problem is being solved by applying the CEN Gas Quality standards at IPs only. We cannot see any benefits associated with this option. We note that this option has been amended since the first consultation in that it is only invoked when a genuine restriction to cross-border trade is recognised and represents a more negotiated approach. However, it is not clear how this option offers anything tangible in addition to the arrangements currently set out in Article 15 of the Interoperability Code. If anything, it would like add confusion to the process.

Q13: Benefits/savings

None

Q14: Costs

Unknown

Q15: Time (number of years)

Unknown

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

None, as it represents no change to the current arrangements.

Q18: Benefits/savings

Continuation of the current arrangements allows cross border trade to continue as today, with any future issues being addresses on a case by case basis using Article 15 of the Interoperability Code.

Q19: Costs

None

Q20: Time (number of years)

N/A

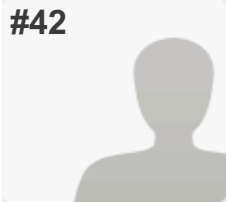
Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	No, Comments In the absence of any positive cost benefit analysis, Centrica sees voluntary adoption as the only reasonable way forward to avoid the risk of unintended consequences for security of supply, competition and impacts on customers. We consider that the measures under the current Article 15 which includes cost benefit analysis and stakeholder consultation to be sufficient.
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes, Comments Yes, in theory, but we do not support the standard being made binding
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	No
Q25: Would you recommend the revision of the current requirements of the CEN standard?	No
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	<i>Respondent skipped this question</i>
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	No, Comments As noted above, Centrica does not consider either approach would be an improvement on the current arrangements as barriers to trade arising from gas quality issues have not been identified.

#42



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

France

Q5: Which segment (s) of the gas value chain do you represent? [1]

Other (please specify below)
Research & Development

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

PAGE 5: Page 5/8

Q7: Impacts

- What is now written in the “Whole Gas Chain” scenario description (Off-spec gas: Any gas not meeting the standard shall be refused), contradicts the first public consultation where stakeholders indicated their preference for accepting off gas spec by the TSO when possible. The ban to do such a thing would result in a restriction of the market at the detriment of traders, producers and end users of such a gas.
- Other EU directives will have an impact on the application of this standard and vice-versa. For most of the directives this European standard on gas quality will have a positive effect and help the application of the directive. For the directives of “Quality of Petrol and diesel Fuels” and “Ecodesign” the requirements may be conflicting and the European Commission (including JRC) will have to consider those conflicting interests and define priorities in their political choices.
 - Reg EU/994/2010 : Security of gas supplies
 - Dir 2009/28/EC : Energy from renewable sources
 - Dir 2014/94/EU : Infrastructure for alternative fuels
 - Dir 98/70/EC : Quality of petrol and diesel fuels
 - Dir 2009/142/EU : Gas appliances
 - Dir 2009/125/EC : Ecodesign
- The necessity for some industries to invest in more sophisticated regulating devices for their process. The related cost is a sound investment and experience shows that it can be cashed back by the improved energy performance of the process and the associated economic gain. The recent development of gas quality sensors help reduce the price of those regulating devices in the short term.

Q8: Benefits/savings

- Free flow of gas, easier for the network operators to deal with
- security of supply assured,
- Enables the development of new markets in all Europe (green gases, syngas, CNG, small scale LNG) thanks to an harmonized gas quality. Everything related to mobility (CNG, LNG, BioCNG, BioLNG as a fuel) can only be developed if there is a common gas quality specified on the whole chain. It is the aim of the European directive 2014/94/EU on the deployment of alternative fuels infrastructures to foster such a development.
- a European standard has more value, more weight than a simple agreement between stakeholders. It can be especially true for newcomers in the gas market. The European Gas Quality Standard would be a common basis and would help the dialogue between different stakeholders.
- The functioning of the market for gas appliances will be improved by the removal of barriers to trade. In all countries where group H is distributed with an inlet pressure of 20 mBar, it will be possible to market any appliance certified for this group and pressure. On the other hand, the gas quality discussion enticed some stakeholders to ask for a reduction in the range declared by member states, previously for the Gas Appliance Directive and in the near future for the Gas Appliance Regulation. The non-application of the EN 16726 would worsen the current situation and would reinforce market fragmentation . It is not a status quo situation. If the standard is not adopted by member states even without a Wobbe Index range, it does not bode well for the revised standard containing a Wobbe Index range and a speed of variation.

Q9: Costs

this solution may oblige some end-users to install gas treatment at the entry of their process to prevent new gas quality (in-spec) delivered. In France though, as we are already compliant with the standard, it will not engender any costs.

Q10: Time (number of years)

There is no implementation time needed for France. For sensitive sectors the implementation time could be 5 years.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

- The gas quality harmonization will not be implemented at several levels like end users and distribution system operators. This can be confusing. TSOs and DSOs for example might have different specifications which creates unwanted barriers.

- As the scope of this scenario is the Cross-border points between EU members states, the question of EU entry points is rising. This scenario is covering less than the EASEE gas scope which means that gas delivered at the EU entry points will not have to be compliant with the EU standard. TSOs at the entry point will have to cover the expenses for treating the gas if necessary.

Q13: Benefits/savings

- The benefits are very limited. In reality the different stakeholders are following the EASEE-gas CBP on gas quality and implementing this scenario will not change a lot of what is happening right now. This is a status quo situation.

Q14: Costs

- there might be gas treatment facilities needed at the EU entry points since EU entry points are not part of the scope of this scenario.

Q15: Time (number of years)

No implementation time needed

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q17: Impacts

- Free flow of gas and security of supply are impaired
 - Costs of gas upgrading will rise
 - Price of gas might rise for the end-user
-

Q18: Benefits/savings

- No benefit at all is expected. At least at the moment, all stakeholders agree on the EASEE-gas CBPs. This equilibrium might be broken with a voluntary adoption scenario. It creates barriers when there are none at the moment.

- No benefit at long term from gas quality harmonisation as wished by the European Commission all those years.

Q19: Costs

Respondent skipped this question

Q20: Time (number of years)

Right away

Q21: Is this given scenario feasible for your segment/organisation/country?

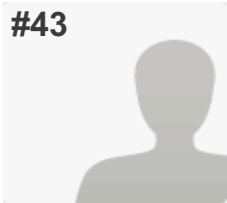
Yes,

Comments It is feasible but not wished

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	Yes, Comments ☒ For the "Whole EU chain" chain scenario, off-spec gas should be allowed, operators may agree to less strict limits ☒ For the "IPs only" scenario, the scope should be the interconnection points between TSOs instead of EU member states. At least that way there will definitely be a gas quality harmonization between TSOs in the same country. And the EU entry points should also be taken into consideration.
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes, Comments Yes, it is better that a standard not yet written does not become legally binding. Nevertheless it is advisable to amend the INC NC again once the EU standard is revised
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	Yes, Comments • Yes, the EU standard applies at IPs
Q25: Would you recommend the revision of the current requirements of the CEN standard?	No
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	<i>Respondent skipped this question</i>
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	<i>Respondent skipped this question</i>
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	Yes, Comments It is one of the way to render the standard binding, thus it is necessary.

#43



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Germany

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

PAGE 4: Page 4/8

Q6: Rank the scenarios in order of preference

Whole EU chain

1

At IPS

3

Voluntary adoption

2

PAGE 5: Page 5/8

Q7: Impacts

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems. Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Q8: Benefits/savings

Safe reliable transmission is ensured from IP to IP, from production (including Entry from Non-EU-States) to IP, from LNG to IP and national injection to IP, from storage to IP and of course from IP to all downstream systems.

Furthermore, this scenario offers flexibility for national situations like renewable gas injection and consumption in regional grids.

Additional benefits: Clear and precise rules for all/legal security

- no Investments for gas treatment facilities at TSO level necessary
- problems regarding the conclusion of Interconnection Agreements (IA) between TSOs can be solved by referring to a common standard
- clear rules, when a gas flow may be interrupted if the gas does not meet the common standard (including rules about liability)

Q9: Costs

Not possible to verify exactly but substantially lower than in other scenarios. In case the TSO has not yet installed quality metering installations at all entry points, additional costs for metering installations.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q12: Impacts

At the worst there will be an enormous raise of transmission risks and no defined downstream gas quality. Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Increased costs will need to be borne by the end consumers and the prices for gas will increase. In consequence this will create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

The reason for the biggest impact is the unmatched legal framework between IPs and national/other injection. Legal obligations on IPs without harmonized definition in the same legal framework of the gas quality for national downstream sector could immediately lead to physical shut downs if there is no possibility for commingling.

As a consequence the TSOs will need to bear the costs of the treatment from CEN quality to national quality standards.

Q13: Benefits/savings

Probably there will be no benefit, because it only deals with IPs. Of course it could help to agree Interconnection agreements but without secured Entry and Exit specification on national level.

Q14: Costs

Gas treatment installations for huge flows would be necessary. The installation of ONE gas treatment facility taking into account an average flow at IPs of 500.000 m3/h would require investments of a high tens of millions (approx. 75 Mio EUR) per treatment facility. For the total costs per country the costs would need to be multiplied with the total amount of IPs per country. Germany has more than 40 physical IPs. Consequently, the transport fees for capacity would increase which would in the end need to be borne by all end consumers even if not all of them would benefit and the prices for gas would increase. In consequence this would create an additional comparative disadvantage for the gas business compared to other fuels like coal and lignite.

Q15: Time (number of years)

several years

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

(Different) national specifications will remain and every TSO has to follow its national rules to avoid additional costs. If the gas does not meet the standard discussions in the respective situation about interruptions may occur. As long as national specifications stay in place without a legal possibility to deviate it will not be possible in IAs to agree on a common standard.

Q18: Benefits/savings

If the status quo remains, we expect no benefit as the current legal unsecure situation will remain.

Q19: Costs

None, the scenario describes the current situation.

Q20: Time (number of years)

The scenario describes the current situation.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Comments
question unclear: if CEN standard would be binding at IPs ("at IPs only scenario") why should it function as a default rule at the same time?

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Total sulfur without odorant, Other,
What would be the value proposed? Can you provide evidence for that?
total sulfur with odorant, Wobbe index

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes

#44



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Italy

Q5: Which segment (s) of the gas value chain do you represent? [1]

Transmission system operator

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Q6: Rank the scenarios in order of preference

Whole EU chain	2
At IPS	3
Voluntary adoption	1

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Q7: Impacts

Negative impacts can be envisaged on the following dimensions:

- Diversification and security of supply: decline of supply volumes coming from current or future sources not compliant with the standard, if additional costs for conversion plants are not undertaken.
- Competition: negative impacts on competitive positions of gas and, in general, on the European energy supply mix, in case current and/or future supply sources are burdened with costs needed to be compliant with the standard.
- Sustainability: potential obstacles for gas sources that will become available in the next future (new/green gases, such as biomethane, synthetic gas etc.).
- Market integration: possible problems to gas flows between countries with different odourization practices. In particular, the increase of sulfur content due to odourization could make flows non-compliant for that parameter in countries where the odourization in the transmission network is not foreseen. In fact, the current standard CEN is designed introducing an unjustifiable asymmetry between systems odourising gas at transmission level and systems not odourising. Sulfur limit should be defined in a neutral way, considering sulfur regardless its origin (odorant or natural sources) as once natural gas is injected into the network it should be possible in principle to re-deliver it to any European customer.

Q8: Benefits/savings

Removing potential barriers to cross-border flows between Member States (gas would have guaranteed the respect of CEN standard ranges, once crossed the EU borders).

Q9: Costs

Respondent skipped this question

Q10: Time (number of years)

Considering the width and the pervasive nature of the proposal, involving numerous subjects internally and externally to EU, an appropriate time horizon should be reserved to the possible implementation of this option.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

This scenario could increase its feasibility if the European institutions would directly take charge of a determined negotiating process with production countries, establishing the pre-conditions for the injection into the EU gas network of gas compliant with the CEN. Alternatively, an adequate support from European institutions to concerned Member States should be provided in order to facilitate the negotiation of bilateral agreements with the same purpose, avoiding that possible costs for making the gas compliant with CEN standard parameters are transferred towards EU economies.

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Q12: Impacts

- The whole responsibility of gas quality for flows crossing EU border and the related costs are borne by TSOs, independently from the original causer(s) of the restriction.
- If the CEN standard is adopted as the final landing place of the process for solving the restriction, the TSO considering the standard parameters as closer to the desired outcome could take an uncooperative stance. In this view, the standard might represent an obstacle to an optimal solution for removing gas flow restrictions.

Q13: Benefits/savings

- TSOs have flexibility in the management of flows in their own network, since the CEN standard would impact only to gas flowing across EU IPs.
- Only a single segment of the supply chain is directly involved, making easier, at least in principle, the identification of obstacles and common decisions.

Q14: Costs

Respondent skipped this question

Q15: Time (number of years)

Considering that the proposal implies several interaction stages between interconnected TSOs and could additionally require the involvement of relevant national stakeholders (NRAs, final users, etc.), an appropriate time horizon should be reserved to the possible implementation of this option.

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

The process foreseen in Art. 15 could be conducted with unequal conditions between the two TSOs, acting the standard as an "anchor" preventing an optimal process solution, since one of the parties involved could find it as convenient.

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Q17: Impacts

No direct or immediate negative impact.

Q18: Benefits/savings

- TSOs have maximum flexibility in the management of their networks.
- This option ensures the access of all the sources currently available to Europe, without preventing those potential future gas flows becoming accessible via new infrastructural and/or technological developments.

Q19: Costs

No cost is currently envisaged as linked to this option.

Q20: Time (number of years)

In practice, this option is currently applied, since Interoperability Code is already entered into force.

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

The process foreseen in Art.15 could be improved since it doesn't include a certain and definitive conclusion. In case of failure of the process, the only way out is an agreement between the relevant NRAs, which can also not materialise. As possible improvement, a guaranteed closing of the process can be inserted in the Code (e.g. including it among the regulatory issues that ACER can settle, according to Art.8 of Regulation 713/2009).

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

As mentioned before, the process foreseen in Art. 15 could be biased and create unequal conditions for the two TSOs, acting the standard as an obstacle preventing an optimal process solution (one of the parties involved could find it as convenient and stick to it).

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Relative density, Total sulfur without odorant,

Mercaptan sulfur without odorant (as sulfur),

Oxygen, Carbon dioxide, Hydro carbon dew point,

Water dew point, Other,

What would be the value proposed? Can you provide evidence for that?

For the indicated parameters, less stringent values should be considered compared to the ones currently included in the CEN Standard. Italy represents one of the biggest and historical gas European market in Europe. Italian gas quality ranges are wider than the CEN standards values: this situation did not cause relevant problems to the various gas chain subjects, while the system profited from less stringent parameters having more sources accessible (with benefits in terms of diversification and security of supply).

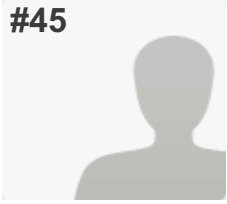
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No

#45



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

United Kingdom,
Comments Norway

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Trader/shipper/supplier

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	2
Voluntary adoption	1

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Q7: Impacts

As we stated in our response to the first consultation we see the following impacts.

→ Implementing the CEN standard as legally binding through the Interoperability Network Code will have a detrimental effect on gas that could be brought onto the European networks from gas production in the UK Continental Shelf (UKCS) and the Norwegian Continental Shelf (NCS). National Grid NTS have determined that in 2015, 13.8 bcm of production would have been curtailed due to the CO2 content being above 2.5 mol%. Their analysis also showed that a further 2.1 bcm would have been curtailed due to the oxygen content being above the CEN standard. This would have been equal to 20% of UK supply being locked out from the NTS. As the NTS in GB is classed as a sensitive network the CEN standard would prevent National Grid NTS from accepting gas outside of the lower limits. The Sulphur limit of 20 mg/m3 could potentially restrict LNG from some locations being sent to LNG terminals with the EU.

The H2S limit could also potentially restrict from some sources of LNG from being delivered into the EU.

Q8: Benefits/savings

We see no benefits from implementing this option.

Q9: Costs

As we stated in our response to the first ENTSOG consultation the costs would be prohibitive. Final UNC Modification Report 0498/0502 Amendment to the Gas Quality NTS Entry Specification at Teesside System Entry Point show that the estimated costs of installing a CO2 removal plant at the Teesside entry terminal would be c. £200m. There would also be additional CO2 emissions associated with the running of the plant.

Q10: Time (number of years)

It would take at least three years to construct a CO2 removal plant.

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments This scenario is not feasible.

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Q12: Impacts

This scenario has been amended since the first consultation so that Article 15 of the INT NC will be invoked if there is an issue with flows over an IP. This is an improvement on the first consultation but we don't see that there is a need to reference the CEN standard in this scenario. As we said in our response to the first ENTSOG consultation we believe any issues with gas quality can and have been resolved at a local level.

Q13: Benefits/savings

We see no benefits in this scenario.

Q14: Costs

There could be increased cost for end users due to a loss of liquidity in the market.

Q15: Time (number of years)

This is a TSO question

Q16: Is this given scenario feasible for your segment/organisation/country?

No

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Q17: Impacts

Please also refer to the answers provided to the first public consultation.
We see no impacts if this scenario is adopted.

Q18: Benefits/savings

Voluntary adoption would mean that issues could be dealt with at a local level as they have been in the past. By not amending the INT NC any issues could be dealt with by the process in Article 15.

Q19: Costs

There would be no costs for this option.

Q20: Time (number of years)

Respondent skipped this question

Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments

As we have stated before, we do not agree with the INT NC being amended

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

As we stated in our answer to this scenario we do not agree with a reference to the CEN standard being included in this scenario.

Q25: Would you recommend the revision of the current requirements of the CEN standard?

No

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Respondent skipped this question

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Respondent skipped this question

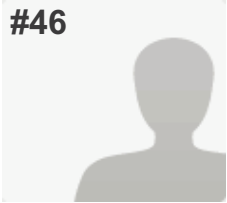
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

We support ENTSOG's redefined scenario 4 proposal not to amend the INT NC.

#46



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

The Netherlands

Q5: Which segment (s) of the gas value chain do you represent? [1]

Power generation

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Q6: Rank the scenarios in order of preference

Respondent skipped this question

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Q7: Impacts

The gas quality has major impact on the use of gasturbines and -engines, both existing and new. The wide quality band in combination with instant step changes make the application of gasturbines and -engines hard to even impossible. Gasturbines and -engines have to apply to stringent EU-emission limit values. Until now in many applications, such as for hospitals, gas engines have been used for emergency power supply. The gas supply will become an unreliable source. A high sulfur content is vary unfavourable for catalytic flue gas cleaning (SCR). Further, instant step changes can easily 'blow out' the flame in a gasturbine, resulting in tripping of the installation. This not only threatens the security of supply of power (!), but also the amount of gas required to refire a gasturbine is very high. This results in unfavourable use of resources.

Q8: Benefits/savings

There are no benefits for end users. The costs for adaptation of equipment or loss of efficiency will exceed by far any possible gas price advantage.

Q9: Costs

For gasturbines and -engines the proposed band width for relative density is unacceptable. Even a more narrow band, wider than the present band, will already result in high costs for additional measurements and controll requirements.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Clearly this is not a feasible option for the use of gasturbines and -engines. We would ask ENTSG to publish all consultation responses of 1st as well as 2nd round.

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Q12: Impacts

Probably there will be no impact for gasturbines and -engines connected to distribution networks, provided (!) local gas quality standards remain applicable.

Q13: Benefits/savings

Status quo, thus no benefits

Q14: Costs

Status quo, thus no costs

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

Gasturbines and -engines will most likely not be affected in this scenario, provided (!) local gas quality standards remain applicable.

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Q17: Impacts

Same as for scenario 3: probably no impact for gas engines connected to distribution networks, provided (!) local gas quality standards remain applicable.

Q18: Benefits/savings

Status quo, thus no benefits.

Q19: Costs

Status quo, thus no costs.

Q20: Time (number of years)

Respondent skipped this question

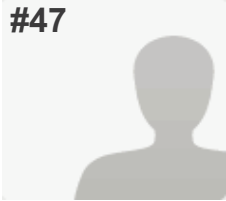
Q21: Is this given scenario feasible for your segment/organisation/country?

Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	No
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	No, Comments Use of current CEN standard is considered highly unfavourable
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Relative density, Total sulfur without odorant, Hydro carbon dew point, Methane number, What would be the value proposed? Can you provide evidence for that? MN of 70 and higher is proposed, as well as a maximum rate of change of 0,3 MN/sec. A MN of 65 results in a loss of efficiency above the expected price advantage (if there is any). The maximum rate of change is a technical requirement. See also Euromot comments.
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	Voluntary adoption
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	No, Comments Regarding question 27; If the gas quality band width is within an acceptable range, it could become applicable to the whole EU chain. Regarding question 28; At this moment there is no advantage at all. It is a threat for end users of gas such as power- and heatgenerators. The quality standard should be adjusted in cooperation with technology suppliers and end users. This might result in measures to be taken by TSOs to adjust the gas quality, or, to limit the band width of gas that can be transported. Final general remark; In line with the outcome of the recent Madrid Forum meeting, we support not to pursue legally binding provisions regarding current standard CEN 16726. Vattenfall expresses it's wish to become actively involved in the adaptation of CEN 16726.

#47



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Non-EU Member State, please specify below,
Comments Russia

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Trader/shipper/supplier

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

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Q7: Impacts

Worsens the current terms of operation in relation to gas quality in course of gas transit to adjacent countries;
Gas flow interruption risks are involved;
Different technological requirements on the equipment operation in different gas value chain segments create a barrier for these scenario implementation;
Significant investments are required to overcome the mentioned barriers.

Q8: Benefits/savings

-

Q9: Costs

Price increase due to the need of production and transportation costs compensation

Q10: Time (number of years)

at least 2 years

Q11: Is this given scenario feasible for your segment/organisation/country?

Comments

In the 2nd round of these Public consultations the refined description of the "Whole chain" scenario contains the following Off-spec gas approach: "any gas not meeting the standard shall be refused". This however contradicts to the fact that, as was presented during the ENTSOG's workshop in Cologne on 13.09.2019 the outcome of the 1st round of Public Consultations showed that for all 4 scenarios the majority of respondents shared the view supporting the possibility to accept gas outside of the standard limits. Therefore we consider it highly important to set the following default approach to the Off-spec gas treatment for the "whole chain" scenario:
"Infrastructure operators may agree less strict limits than those of the standard"

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Q12: Impacts

-

Q13: Benefits/savings

-

Q14: Costs

-

Q15: Time (number of years)

-

Q16: Is this given scenario feasible for your segment/organisation/country?

No,

Comments -

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Q17: Impacts

This scenario is absolutely unreasonable and unacceptable since it allows for application of terms and requirements that are different from the ones set in the CEN Standard

Q18: Benefits/savings

-

Q19: Costs

-

Q20: Time (number of years)

-

Q21: Is this given scenario feasible for your segment/organisation/country?

No,
Comments -

PAGE 8: Page 8/8

Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

Yes,
Comments
In regards with the off-spec gas treatment infrastructure operators should be allowed to agree to less strict limits than those of the standard in all considered scenarios

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

Yes

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

Yes

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Relative density, Total sulfur without odorant, Hydrogen sulfide + Carbonyl sulfide (as sulfur), Mercaptan sulfur without odorant (as sulfur), Oxygen,
What would be the value proposed? Can you provide evidence for that?
At standard conditions T=25/20 C: Relative density - no limitation Total sulfur without odorant - 30 mg/cubic meter Hydrogen sulfide without carbonyl sulfide - 7 mg/cubic meter Mercaptan sulfur without odorant -16 mg/cubic meter Oxygen - 200 ppm

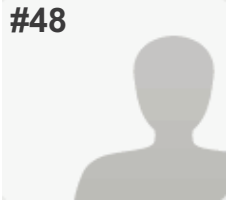
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

Yes,
Comments
If all the abovementioned remarks are taken into account.

#48



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

The Netherlands

Q5: Which segment (s) of the gas value chain do you represent? [1]

Industrial equipment manufacturer/end user ,
Other (please specify below)
Gas engines are typically connected to the distribution network. This category is consequently neglected in the documents. In the Netherlands 3500 MWe of gas engine capacity is installed and consuming 3 BCM of natural gas.

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	1
Voluntary adoption	2

PAGE 5: Page 5/8

Q7: Impacts

The gas quality has major impact on the use of gas engines, both existing and new. The wide quality band in combination with instant step changes make the application of gas engines impossible. Gas engines have to apply to stringent EU-emission limit values. Until now in many applications, such as for hospitals, gas engines have been used for emergency power supply. The gas supply will become an unreliable source. A high sulfur content is very unfavourable for catalytic flue gas cleaning (SCR) as well as for the application of high tech fuel cells.

Q8: Benefits/savings

There are no benefits for end users. The costs for adaptation or loss of efficiency will exceed by a factor any possible gas price advantage.

Q9: Costs

For gas engines the proposed band width is unacceptable. A more narrow band, wider than the present band, will result in costs for additional measurements and controll requirements.

Q10: Time (number of years)

Respondent skipped this question

Q11: Is this given scenario feasible for your segment/organisation/country?

No,

Comments

Clearly this is not an feasible option for the use of gas engines.

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Q12: Impacts

Probably there will be no impact for gas engines connected to distribution networks if local gas quality standards remain applicable. This implies that TSO is legally permitted and obliged to treat the gas is such a way that existing gas quality standard are maintained.

Q13: Benefits/savings

Status quo, so no benefits.

Q14: Costs

Status quo, so no costs.

Q15: Time (number of years)

Respondent skipped this question

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

Gas engines most likely will not be affected in this scenario. TSO are in this case obliged to treat gas in such a manner that the local gas quality band width is respected.

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Q17: Impacts

Same as for scenario 3: probably no impact for gas engines connected to distribution networks as long as existing local gas quality standards are maintained. Again this implies that TSO is legally permitted and obliged to treat the gas is such a way that existing gas quality standard are maintained.

Q18: Benefits/savings

No benefits.

Q19: Costs

No costs.

Q20: Time (number of years)	<i>Respondent skipped this question</i>
Q21: Is this given scenario feasible for your segment/organisation/country?	Yes

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?	Yes, Comments TSO should be obliged to treat gas in such a manner that gas quality in national transport and distribution systems is in line with end user specifications. This is technically feasible and much more cost effective than confronting end users with gas quality that requires costly measures or desinvestments and efficiency loss.
Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	Yes
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	No
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Total sulfur without odorant, Methane number, What would be the value proposed? Can you provide evidence for that? MN of 70 and higher is proposed, as well as a maximum rate of change of 0,3 MN/sec. A MN of 65 results in a loss of efficiency above the expected price advantage (if there is any). The maximum rate of change is a technical requirement. See also Euromot comments. Sulfur should be below 10 mg/m3. Sulfur is poisonous for catalists and hinder the implementation of fuel cells.
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	Voluntary adoption

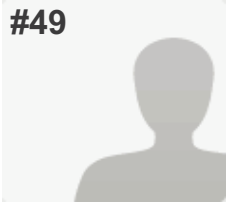
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments

At this moment there is no advantage at all. It is a threat for end users of gas and technology suppliers. The quality standard should be adjusted in cooperation with technology suppliers and end users. This might result in measures to be taken by TSOs to adjust the gas quality, or, to limit the band width of gas that can be transported.

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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

Poland

Q5: Which segment (s) of the gas value chain do you represent? [1]

Production, Trader/shipper/supplier,
Power generation

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Q6: Rank the scenarios in order of preference

Whole EU chain	1
At IPS	2
Voluntary adoption	3

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Q7: Impacts

Gas infrastructure and gas quality systems are not ready at this time for scenario 1. Internal regulations will have to be revised.

Q8: Benefits/savings

No comments.

Q9: Costs

Costs related to issue no. 7 above will be very high.

Q10: Time (number of years)

All processes related to legislation and investment activity - at least 3 years.

Q11: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments More time is required.

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Q12: Impacts

See issue no. 7

Q13: Benefits/savings

See issue no. 8

Q14: Costs

See issue no. 9

Q15: Time (number of years)

See issue no. 10

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments No comments

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Q17: Impacts

Possibility: to meet various gas quality and limitation in gas trading

End-users (industrial-users) will have a lot of problems related to various gas quality in relatively short periods of time

Q18: Benefits/savings

Legislation will have to be revised.

Q19: Costs

Cost seems to be very high (in a longer period of time).

Q20: Time (number of years)

See issue no. 10

Q21: Is this given scenario feasible for your segment/organisation/country?

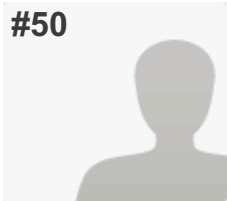
Yes,

Comments No comments

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG? No

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?	No, Comments Some parameters in EN 16726 will have to be changed
Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?	No, Comments As above.
Q25: Would you recommend the revision of the current requirements of the CEN standard?	Yes
Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?	Hydrogen sulfide + Carbonyl sulfide (as sulfur) , Oxygen, Carbon dioxide, Hydro carbon dew point , Water dew point, Other, What would be the value proposed? Can you provide evidence for that? Wobbe index and hydrogen content.
Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?	Whole EU chain
Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?	Yes, Comments After revision.



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Q3: Would you like the answers to the following questions to be kept confidential and be reported only in an aggregate manner?

No

Q4: Which EU Member State do you represent?

European interests (stakeholder association), please specify below

Comments → For Euromot

Q5: Which segment (s) of the gas value chain do you represent? [1]

Industrial equipment manufacturer/end user ,
Power generation, Mobility

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Q6: Rank the scenarios in order of preference

Whole EU chain	3
At IPS	1
Voluntary adoption	2

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Q7: Impacts

Implementation of EN 16726:2015 will negatively impact the market for gas using equipment in the EU, since the EC and the member states might demand that all gas using equipment and processes should comply with EN 16726:2015. That means that the good properties of quality gas that is supplied in many areas in Europe could no longer be exploited, resulting in lower performance and higher emission. Examples are the very low minimum methane number. Probably 98 percent of all gases in Europe have a methane number higher than 70. Further, the maximum sulphur contents of 30 mg/m3 makes it impossible to use oxidation catalysts (automotive + the power sector), causes unnecessary corrosion and increases the acidifying emissions. The wide relative density range in the standard is unacceptable for most gas using equipment and processes.

See as well

<http://www.euromot.org/download/543835e1de278fdb4d09353>

<http://www.euromot.org/download/5438372ede278fdb4d09478>

<http://www.euromot.org/download/54383733de278fdb4d0947a>

Q8: Benefits/savings

The benefits and savings of integrating EN 16726:2015 in the network code have never been given by the gas sector. No data are available for it and therefore the savings are presumed to be only a fraction compared to the cost for users and manufacturers. The first GL Noble Denton-Poyry report mentioned initial costs of 168 Billion € for the user sector and an annual benefit of only 0.8 Billion € for the gas sector.

See as well

<http://www.euromot.org/download/5438360cde278fdb4d09364>

Q9: Costs

Poorer performance, higher emissions, less safety, poorer product quality, frequent trips. Gas will become less attractive as a fuel to such an extent that all efforts by the manufacturer sector of the past decade to improve performance and reduce emissions are lost.

Q10: Time (number of years)

The negative consequences will continue through the time

Q11: Is this given scenario feasible for your segment/organisation/country?

No

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Q12: Impacts

If the negative consequences of EN 16726:2015 are solved at the IP points by treating the gas of blending/mixing/mingling to create quality gas for the users, the only impact will be for the body that has to treat the gas. Numbers given by the gas sector of costs of only 0.2€cts per m3 of gas means that such a price increase is very small compared to the negative consequences of integrating the standard for the users. Implementation of EN 16726:2015 should not mean that the gas leaving the IP has to comply with EN 16726:2015, only that the IPs have to be able to accept the gas and treat it subsequently before users receive it.

Q13: Benefits/savings

In case the gas will be treated to quality gas at the IPs, the benefit for the users is good, since it allows the gas sector to feed in gas of deviating qualities upstream of the IP. However, it is the question if EN 16726:2015 is needed in such cases, since at the IP also gas that does not comply with the standard can be treated.

Q14: Costs

See 13

Q15: Time (number of years)

Treatment of the gas at IPs can last 'for ever'

Q16: Is this given scenario feasible for your segment/organisation/country?

Yes,

Comments

• Yes, only if the gas is treated at the IP for creating quality gas.

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Q17: Impacts

Voluntary adoption is the same as having no standard. Nevertheless, the EN 16726:2015 should never be adopted since it does not guarantee that quality gas is delivered to the users. The standard rather offers possibilities to supply poor quality gas.

It further creates diversification of specs for the sulphur contents of gases.

Q18: Benefits/savings

No benefits

Q19: Costs

High

Q20: Time (number of years)

Never

Q21: Is this given scenario feasible for your segment/organisation/country?

No

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Q22: Would you propose any amendments to the refined scenarios proposed by ENTSOG?

Comments

The best scenario is such that many gases of different composition can enter the EU network upstream of entry points while these gases are treated at those points of entry. In particular using liquid phase of LNG would be the ideal boundary condition for gas stripping plants. Removing higher hydrocarbons helps to narrow the relative density range and the higher hydrocarbons can be sold for other purposes. Sulphur can also be removed at such IP points.

Q23: To provide stability in the legal framework, if the INT NC is amended, the reference to the standard will be linked to the 2015 version, preventing any revision to become automatically binding. Do you agree with this approach?

No,

Comments , revisions can only improve the standard

Q24: For the "At IPs only scenario", would you agree to use the CEN standard as default rule when TSOs do not reach an agreement on a solution?

No,

Comments

• No, TSOs are obliged to find a solution, since solutions exist

Q25: Would you recommend the revision of the current requirements of the CEN standard?

Yes

Q26: Only if answer to question 25 is affirmative, for which parameter, term or condition?

Relative density, Total sulfur without odorant,
Hydrogen sulfide + Carbonyl sulfide (as sulfur) ,
Mercaptan sulfur without odorant (as sulfur) ,
Methane number,

What would be the value proposed? Can you provide evidence for that?
http://www.euromot.org/download/5438372ede278fdc_b4d09478 Methane number > 70, since only Libyan LNG has a lower value Sulphur: < 10 mg/m³ to protect catalysts, reduce emissions and prevent corrosion The relative density range is disturbing the desire for quality gas. It goes far beyond the definition of the H-group of gases. But also a limited Wobbe index range at a specific location, a limited speed of variation in WI and a limit to the amplitude in plug flow should be included in the revised standard. Recent results from Denmark have shown that plug flow is unacceptable for users and plug flow cannot be avoided in case of a wide range of gas compositions.

Q27: Only if answer to question 25 is affirmative, would such revision change your preference for the scenarios? Which one would you choose?

Whole EU chain

Q28: Do you agree to amend the INT NC to include a reference to the gas quality standard (i.e. you support "whole EU chain" scenario and/or "At IPs only")?

No,

Comments
Not with this standard. • Yes, in case a standard guaranteeing quality gas is available.