
Call for Input: Open letter to industry to gauge interest in revisiting the opportunity to raise the upper limit of the Wobbe Index

1 February 2024

Executive Summary

The revisions made to the Gas Safety (Management) Regulations 1996 ("GSMR")¹ in April 2023 did not include a provision to raise the upper limit of the Wobbe Index. Currently most imports of Liquefied Natural Gas ("LNG") into Great Britain ("GB") must be ballasted with nitrogen to bring them in-line with the current Wobbe Index limits, increasing cost of import, and potentially restricting sources of LNG into GB. Raising the upper limit of the Wobbe Index may also enable GB to import currently out-of-specification offshore natural gas without additional processing.

The Health and Safety Executive ("HSE") have responsibility for the GSMR and any revisions would fall to them to make. The evidence base provided to date does not demonstrate that health and safety standards would be maintained or improved by a change to the upper Wobbe Index. HSE did however confirm that they were open to revisit the current Wobbe Index limits if new evidence were provided that demonstrated that health and safety standards would be maintained or improved by any changes. This letter presents the proposal to open a discussion with industry to see whether a project can be developed that will gather evidence to demonstrate that health and safety standards would not be compromised. It does not commit to any regulatory change at this stage.

Introduction

On 6 April 2023 amendments to the GSMR came into force.² These amendments included:

¹ <https://www.legislation.gov.uk/ukxi/1996/551/contents/made>

² [https://www.hse.gov.uk/gas/gas-safety-management-regulation-changes.htm#:~:text=The%20Gas%20Safety%20\(Management\)%20\(Amendment\)%20Regulations%202023&text=gas%20that%20is%20permitted%20in,to%20comply%20with%20Schedule%203](https://www.hse.gov.uk/gas/gas-safety-management-regulation-changes.htm#:~:text=The%20Gas%20Safety%20(Management)%20(Amendment)%20Regulations%202023&text=gas%20that%20is%20permitted%20in,to%20comply%20with%20Schedule%203)

- Gas that is permitted in gas networks in GB must have a relative density of ≤ 0.700 . The incomplete combustion factor and sooting index values are no longer required to comply with Schedule 3.
- Gas that is permitted in gas networks in GB may have an oxygen content of $\leq 1\%$ (molar) so long as it is conveyed at pressures ≤ 38 Barg.
- LNG import facilities are subject to the co-operation requirements set down by the regulations.
- The gas emergency telephone service is now known as the Emergency Reporting Service. The function of the service remains the same however no gas network may operate without an Emergency Reporting Service in place and a new schedule has been created outlining the particulars to be included in the safety case of the Emergency Reporting Service.

Additionally:

- The lower limit of the Wobbe Index for gas permitted in gas networks in GB will change to $\geq 46.5 \text{ MJ/m}^3$ on 6 April 2025.
- Pipelines conveying biomethane must be operated with a safety case. Duty holders will have until 6 October 2024 to prepare and submit a safety case to the HSE if they are not already operating with one. Biomethane can continue to be conveyed to treatment or blending points if the gas requires them to bring it into conformity with Schedule 3 gas quality specifications.

In making the amendments to GSMR, industry presented evidence to reduce the lower limit and raise the upper limit of the Wobbe Index. HSE considered this evidence when developing the amendments, however the evidence for raising the upper limit of the Wobbe Index did not demonstrate that health and safety standards would be maintained or improved and so was not taken forward to a change in the regulations. The HSE has published an impact assessment and reasons for its decision to amend the GSMR.³

Scope

This letter covers the requirements of 2nd Family gases,⁴ shipped in gas networks in GB that would meet the National Gas Transmission specification and requirements of GSMR.

³ [https://www.hse.gov.uk/gas/gas-safety-management-regulation-changes.htm#:~:text=The%20Gas%20Safety%20\(Management\)%20\(Amendment\)%20Regulations%202023&text=gas%20that%20is%20permitted%20in,to%20comply%20with%20Schedule%203](https://www.hse.gov.uk/gas/gas-safety-management-regulation-changes.htm#:~:text=The%20Gas%20Safety%20(Management)%20(Amendment)%20Regulations%202023&text=gas%20that%20is%20permitted%20in,to%20comply%20with%20Schedule%203)

⁴ "Families of gases" is a scoping mechanism which enables types of gases to be grouped by their Wobbe range.

Background and Common Issues

What has been done to date to address the challenge?

In April 2020, the Institution of Gas Engineers and Managers ("IGEM") published a report entitled '*A Proposed New IGEM Gas Quality Standard – A Key Step on the Pathway to Net Zero Emissions*'. This report had been produced by the IGEM Gas Quality Working Group and amongst other things its aims were to widen the Wobbe Index range to the existing emergency limits. This would mean increasing the upper limit of the Wobbe Index from $\leq 51.41 \text{ MJ/m}^3$ to $\leq 52.85 \text{ MJ/m}^3$.

The report was produced following several years of research, the most significant of which was SGN's '*Opening up the Gas Market, Network Innovation Competition*' project. This gained consumer acceptance by testing, demonstrating and rolling out a wider range of gas quality to about 8000 domestic and small commercial customers.

Following completion, the report was sent to the HSE as supporting evidence to amend the Wobbe Index range as part of the GSMR review.

Why was the evidence not accepted?

In the amendments to the GSMR consultation, it was stated that the proposal would not be taken forward or prioritised at present. Health and safety legislation has an enshrined principle that any new policy introduced should not represent a deterioration in safety standards and concerns remained over the reduction in health and safety standards associated with an increase in the upper limit of the Wobbe Index and the effectiveness of mitigatory controls.

The SGN project included significant mitigatory controls which may be impractical to apply to a wide scale roll out. Further research and testing are therefore required to establish the effectiveness of mitigatory controls and whether these can be rolled out at scale.

Indicative analysis also showed the proposal may be cost-prohibitive due to costs of control measures that may be necessary to manage any higher risk and also costs to end users in servicing, modifying or maintaining equipment. One respondent to the consultation on amendments to the GSMR had included an argument that an increase in the Wobbe Index would result in a reduction in societal risks such as fuel poverty.

Any additional evidence would also need to demonstrate the whole cost of the implementation of any increase to the upper limit of the Wobbe Index. Cost benefits associated with reduced nitrogen ballasting and widening the market for LNG imports

would need to be adequately balanced with the cost to industry and homeowners of applying control measures that maintain current safety risk assessments.

Control measures were proposed in the submission which included field adjustments to appliances and more regular maintenance, however insufficient detail was provided on how this would be implemented and what level of quality control would be needed to ensure these measures were carried out correctly. In addition, it is not clear how it will be ensured that these measures are enduring and adopted universally.

Only domestic boilers were tested as part of the Network Innovation Competition project. Desk top research was carried out on non-domestic and power generation utilisation, but more thorough appliance testing is required to demonstrate the impact of an increase in the upper limit of the Wobbe Index in existing appliances.

Furthermore, and as noted above, the lower limit of the Wobbe Index for gas permitted in gas networks in GB will reduce from $\geq 47.2 \text{ MJ/m}^3$ to $\geq 46.5 \text{ MJ/m}^3$ on 6 April 2025. Therefore, if there is to be consideration of raising the upper limit of the Wobbe Index, we are of the view that it would be necessary to provide evidence on the safe operational range of the Wobbe Index as a whole.

Further analysis should also be undertaken on the impacts on a wider range of gas assets, for example National Gas Transmission. The impact that introducing more carbon-intensive natural gas will have on net zero ambitions will need to be assessed and the relationship with gas specification regulations in connected international markets will also need to be considered should a higher upper limit to the Wobbe Index be adopted.

Conclusion

The current evidence base and analysis of potential impacts is insufficient to support a change to the upper limit of the Wobbe Index. However, Ofgem consider there is merit in further exploring the possibility of raising the upper limit of the Wobbe Index to widen the range of available gas to import and reduce, or even eliminate, the cost of nitrogen ballasting.

This letter is a request to industry to engage with us to explore the possibility of scoping a project that would address the gaps in the evidence base and analysis highlighted above. We will also seek to engage further with HSE to help to inform the potential scope of any project(s). However, Ofgem does not commit to any regulatory change at this time.

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Next Steps

We would like to engage with industry to explore whether there is an appetite to carry out this work. If sufficient interest is demonstrated, we will organise a workshop to explore what options may exist to address the challenges.

Please contact energy.securityofsupply@ofgem.gov.uk by close of business 29 February 2024 if you are interested in participating in this work.

Helen Seaton

Interim Head of Energy Security of Supply, ESMS

Signed on behalf of the Authority