

Representation - Draft Modification Report 0581S

Amending the Oxygen content limit specified in the Network Entry Agreements at Grain LNG

Responses invited by: **5pm 13 May 2016**

To: enquiries@gasgovernance.co.uk

Representative:	Vanessa Webster
Organisation:	GSOG
Date of Representation:	13 May 2016
Support or oppose implementation?	Oppose
Relevant Objective:	<p>d) (i) between Shippers, Negative – likely to introduce distortion between Shippers who will benefit from and those who will be picking up the cost of this modification.</p> <p>li (between suppliers), None – no evidence shown to support positive impact</p> <p>& iii DNOs None</p>

Reason for support/opposition: Please summarise (in one paragraph) the key reason(s)

This modification proposes to modestly increase the oxygen content limit in each relevant NEA at Grain LNG to 0.02 mol% (200ppm), similar to implemented UNC modification 561s, as it is deemed to be beneficial to the UK gas market as a whole. However, while the reasons behind UNC561s were clear (a change to Dutch Gas quality parameters meant there was a real risk that gas could be locked out of the GB market) the reasons under 581s are unclear as no evidence has been provided to support the claim that this limit in NEAs unduly and unnecessarily restricts the UK market in accessing certain LNG cargoes.

What is clear is that increasing the Oxygen limit in LNG gas will lead to higher O₂ content in the gas delivered to gas storage facilities which in turn will significantly impact the plant and equipment of downstream gas storage facilities leading to extra cost and potentially operational restrictions for the following reasons:

- the requested 200ppm is a 20x increase and would likely result in a continuous stream of close to 200ppm O₂ gas as LNG terminal switches from Nitrogen to air ballasting (the 200ppm O₂ limit increase for the BBL/NTS Interconnection Agreement was to avoid spikes over the target 10ppm average being refused by the Bacton terminal, not to continuously flow at 200ppm)
- 200ppm oxygen can react with natural gas at bed regeneration temperatures resulting in water and CO₂ production. This would make beds harder to regenerate by introducing water to the system and the CO₂ could pose a corrosion risk and extra heating requirement adding more cost.

- More expensive molecular sieve may be required, with higher oxygen tolerance.
- May increase the already significant network issue of black dust and black powder as witnessed at storage facilities in the UK
- Could result in the increased formation of Carbonic Acid within brined salt caverns exacerbating corrosion within the mild steel pipework
- higher Oxygen can lead to an increased risk of formation of elemental sulphur ($8\text{H}_2\text{S} + 4\text{O}_2 = 8\text{H}_2\text{O} + \text{S}_8$), which can desublime downstream of choke valves to coat pipework and quickly block Coalescer filters. There is evidence of this occurring within the UK Gas Storage system. NG Storage Connection Agreements (SCA) specify the maximum O₂ level in methane as 0.001 mole%.
- If the gas received is over 0.001 mole% for Storage Operators to then reinject the gas into the NTS then SCAs will need to be amended.

We therefore do not believe this modification is warranted or justified and should not be implemented without a full Impact Assessment.

If this modification were to be implemented it could set a dangerous precedent that would allow other LNG facilities to request an automatic increase as the driver here seems to be the benefits of switching from nitrogen to air ballasting.

Self-Governance Statement: *Please provide your views on the self-governance statement.*

No, this modification should not be subject to self-governance because of the significant impact it might have on downstream gas storage assets as highlighted above.

Implementation: *What lead-time do you wish to see prior to implementation and why?*

A year's notice would at least be needed to assess the actual impact on storage facilities and make adjustments to equipment and operations. **At least two year's notice would be required to assess the actual impact on storage facilities and make adjustments to equipment and operations.**

Impacts and Costs: *What analysis, development and ongoing costs would you face?*

It is hard to put a cost on these real impacts highlighted above however it would easily be hundreds of thousand pounds across the Gas Storage industry, and under certain circumstance be of the same order of magnitude for individual sites.

Are there any errors or omissions in this Modification Report that you think should be taken into account? *Include details of any impacts/costs to your organisation that are directly related to this.*

There is no evidence to support the claim that without this modification LNG supplies to GB market may be restricted or that this modification furthers the relevant objectives D securing effective competition between (i) shippers; indeed, if implemented it may distort competition between the shippers who will benefit from reduced costs and those picking up the costs of this modification.

Also while the DMR states Gas Transporters were consulted no gas storage operator or other owner of gas assets were consulted which is disappointing for a modification of this significance, especially considering the recently adopted CEN gas standard which many large gas suppliers are worried about.

Please provide below any additional analysis or information to support your representation

Attached are two documents that support the points raised in this response.

Poyry Gas Quality report

<http://www.poyry.co.uk/sites/www.poyry.uk/files/DTIGasQuality.pdf>

Molecular sieve O₂ impact reference paper:

<http://www.rschendel.com/PDF/Mol%20Sieve%20dehydration%20of%20gas%20containing%20O2%20-%20151211-1.pdf>

GSOG Members who are signatories to this report:

EDF Energy

Gateway Storage Company Ltd

Halite Energy Group

Humbly Grove Energy Ltd

Inovyn Enterprises Limited

Islandmagee Storage Ltd

King Street Energy

ScottishPower

SSE Hornsea Ltd

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