

UNC Modification		At what stage is this document in the process?
<h1>UNC 0645:</h1> <h2>Amending the oxygen content limit in the Network Entry Agreement at South Hook LNG</h2>		<div style="display: flex; flex-direction: column; gap: 5px;"> <div style="border: 1px solid green; background-color: #00a651; color: white; padding: 5px; display: flex; justify-content: space-between; align-items: center;"> 01 Modification </div> <div style="border: 1px solid #00a651; padding: 5px; display: flex; justify-content: space-between; align-items: center;"> 02 Workgroup Report </div> <div style="border: 1px solid #00a651; padding: 5px; display: flex; justify-content: space-between; align-items: center;"> 03 Draft Modification Report </div> <div style="border: 1px solid #00a651; padding: 5px; display: flex; justify-content: space-between; align-items: center;"> 04 Final Modification Report </div> </div>
<p>Purpose of Modification:</p> <p>This Modification will enable an increase to the oxygen content limit of gas permitted by the Network Entry Agreement at South Hook LNG.</p>		
	<p>The Proposer recommends that this modification should be:</p> <ul style="list-style-type: none"> assessed by a Workgroup <p>This modification will be presented by the Proposer to the UNC Panel on 18 January 2018. The Panel will consider the Proposer’s recommendation and determine the appropriate route.</p>	
	<p>High Impact: None</p>	
	<p>Medium Impact: None</p>	
	<p>Low Impact: Transporters, consumers</p>	

Contents	
1 Summary	3
2 Governance	4
3 Why Change?	4
4 Code Specific Matters	5
5 Solution	5
6 Impacts & Other Considerations	5
7 Relevant Objectives	7
8 Implementation	7
9 Legal Text	7
10 Recommendations	7
Timetable	
The Proposer recommends the following timetable:	
Initial consideration by Workgroup	08 February 2018
Workgroup Report presented to Panel	15 March 2018
Draft Modification Report issued for consultation	15 March 2018
Consultation Close-out for representations	05 April 2018
Final Modification Report available for Panel	09 April 2018
Modification Panel decision	19 April 2018

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1 Summary

What

In Great Britain, there are two oxygen limits that are pertinent to network entry requirements. The first 2000ppm (0.2mol%) is a safety limit specified in Schedule 3 Part 1 (regulation 8) of the Gas Safety (Management) Regulations. The second is a guideline limit of 10ppm (0.001mol%) contained in National Grid's Gas Ten Year Statement, which is currently in place in the South Hook LNG National Grid Network Entry Agreement (NEA).

This limit was applied at the nearby Dynevor Arms LNG storage facility in South Wales to mitigate the potential for water formation within the molecular sieves. At LNG storage sites, part of the liquefaction process prior to injection was to remove components in the gas offtake from the NTS that would otherwise freeze using molecular sieves. The presence of up to 0.2mol% oxygen in the gas would have therefore reduced the performance of that process and limited the life of those assets.

Why

GS(M)R (1996) allows for maximum O₂ levels of 2000ppm (0.2 mol%), however the current oxygen content limits set out in the Network Entry Agreement (NEA) at South Hook LNG Terminal are set at 10ppm (0.001mol%).

A small level of oxygen breakthrough from the Nitrogen Generation Unit (NGU) at the terminal can cause the 10ppm limit to be breached. As the source of the oxygen contamination is the NGU, the nitrogen ballasting must be reduced to rectify the fault with the NGU. The reduction in ballasting-nitrogen can subsequently cause a breach in the Incomplete Combustion Factor (ICF) specification limit.

When South Hook LNG came onstream at the nearby Milford Haven Entry point, the same 10ppm oxygen limit was applied in the South Hook LNG - National Grid NEA, to mitigate against the aforementioned issues at the Dynevor Arms LNG storage facility. Now the facility is obsolete, there is no longer a requirement for the strict oxygen limit. The proposer believes this limit is unnecessary and restrictive to the efficient operation of South Hook LNG terminal.

How

The proposal is to increase the limit for oxygen, as defined within the South Hook LNG NEA from the current limit of 0.001 mol% (10 ppm), to 0.02 mol% (200ppm). The proposed value falls well within the Gas Safety (Management) Regulation limit of 0.2 mol% (2000ppm). Pursuant to UNC TPD I2.2 this Modification, if approved, will enable a change to the South Hook LNG NEA.

It should be noted that similar enabling Modifications, [0561S "Amendment to the Oxygen Limit within the BBL/NTS Interconnection Agreement"](#) and [0581S "Amending the Oxygen content limit specified in the Network Entry Agreements at Grain LNG"](#) were approved by the UNC Modification Panel in November 2015 and July 2016 respectively and were both implemented under self-governance arrangements. An oxygen content limit of 200ppm (0.02 mol%) was agreed for both Modifications.

2 Governance

Justification for Self-Governance

Based on two previous Modifications enabling a change to the same O₂ limit, the Proposer believes this is not likely to have a material effect on the self-governance criteria.

There is no discrimination between any of these parties. Gas quality limits vary at different entry points and given Modifications 0561S and 0581S have been approved, this proposal isn't expected to materially change the current position in relation to discrimination between parties.

Requested Next Steps

This modification should be subject to self-governance procedures and be assessed by a Workgroup.

3 Why Change?

De-risking the probability of an Incomplete Combustion Factor (ICF) breach

As explained above, the nitrogen ballasting from the NGU is used to keep the ICF within its specification limit. If there is an oxygen excursion on the NGU this causes the send-out oxygen to go off-specification if the nitrogen ballasting is not sufficiently reduced, in turn possibly causing an ICF specification breach. An increase in send-out oxygen limit would provide more room for an NGU oxygen excursion, allowing the nitrogen ballasting to continue at a higher rate and a reduced probability of a subsequent ICF excursion.

Security of supply

The ability of a Delivery Facility Operator (DFO) to deliver gas to the NTS at an entry point (or subterminal) is limited by the Network Entry Provisions contained in the relevant Network Entry Agreement (NEA) between the DFO and the relevant gas transporter. Amongst other things, the NEA will set a limit on the oxygen content of the gas to be delivered to the gas transporter's system, which is currently set at 0.001 mol% in South Hook LNG's NEA with National Grid.

As illustrated in [National Grid FES scenarios](#), import dependency is expected to increase and with this, GB can expect greater diversity in the gas composition of future cargoes. The current limit at South Hook LNG is at risk of being too restrictive to meet the composition of future cargoes, therefore it is in the interest of the UK gas market to better facilitate the delivery of LNG cargoes at Milford Haven.

The short-term solution to achieving this is to allow a relatively modest increase to 0.02mol% in the oxygen limit at South Hook LNG. The second step in the mid-long term is currently being addressed in the current [IGEM Gas Quality Standard Working Group](#).

Consistency with other entry points O₂ limit

The table below is a summary from Ofgem's letter to industry titled [Establishing a gas quality Review Group](#) dated 20 September 2004 and the proposed new limit of 0.02mol% for the South Hook LNG NEA sits towards the lower end of the of the total number of 21 entry points cited in 2004.

<u>O2 Content Limit (mol%)</u>	<u># Entry Points</u>	<u>Cumulative # Entry Points</u>
0.001	7	7
0.100	9	17
0.200	4	21

It should be noted that similar enabling Modifications 0561S and 0581s were approved by the UNC Modification Panel in November 2015 and July 2016 respectively and implemented under self-governance arrangements. An identical 0.02 mol% oxygen content limit was agreed for both.

Therefore, this Modification proposal is consistent with similar change requests to NEAs in the past and in accordance with paragraph I2.2.3 (a) of the UNC Transportation Principal Document, a Code Modification has been chosen as the means by which to effect the changes to the oxygen content limits in the South Hook LNG NEA.

What the effects are, should the change not be made

The risk of avoidable ICF exceedances would still remain at South Hook LNG Terminal should the modest change not be made. South Hook LNG may also be disadvantaged in effective competition between other shippers and suppliers that are not subject to such a strict oxygen content limit.

4 Code Specific Matters

Reference Documents

No reference documents.

Knowledge/Skills

No additional knowledge/skills required.

5 Solution

Increase the maximum oxygen limit in the South Hook LNG Network Entry Agreement

The solution to the issue raised in this proposal is to increase the permitted oxygen content of the gas in the South Hook LNG Network Entry Agreement from 0.001 mol% to 0.02 mol%. This increased level would remain well within the level of 0.2 mol% allowable under the Gas Safety (Management) Regulations. It would also appear to be significantly lower than the limits permitted at the majority of other NTS entry points.

6 Impacts & Other Considerations

Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

Not applicable.

Consumer Impacts

None. Based on implementation of previous Modifications this enabling Modification is unlikely to have a material impact on consumers whose offtake facilities are sensitive to the level of oxygen content in gas.

Cross Code Impacts

None.

EU Code Impacts

None.

Central Systems Impacts

None.

7 Relevant Objectives

Impact of the modification on the Relevant Objectives:	
Relevant Objective	Identified impact
a) Efficient and economic operation of the pipe-line system.	None
b) Coordinated, efficient and economic operation of (i) the combined pipe-line system, and/ or (ii) the pipe-line system of one or more other relevant gas transporters.	None
c) Efficient discharge of the licensee's obligations.	None
d) Securing of effective competition: (i) between relevant shippers; (ii) between relevant suppliers; and/or (iii) between DN operators (who have entered into transportation arrangements with other relevant gas transporters) and relevant shippers.	Positive
e) Provision of reasonable economic incentives for relevant suppliers to secure that the domestic customer supply security standards... are satisfied as respects the availability of gas to their domestic customers.	None
f) Promotion of efficiency in the implementation and administration of the Code.	None
g) Compliance with the Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	None

Positive Impact of Increasing Oxygen Limits

The Proposer believes positive impacts can be identified for objective *d) securing of effective competition between various parties*. Removing unnecessary restrictions on the deliveries of LNG will allow more gas to enter the UK market, improve liquidity and will therefore help to promote competition between gas shippers and gas suppliers.

8 Implementation

As self-governance procedures are proposed, implementation could be sixteen business days after a Modification Panel decision to implement, subject to no Appeal being raised.

9 Legal Text

As this is an enabling Modification, no UNC text changes are requested.

10 Recommendations

Proposer's Recommendation to Panel

Panel is asked to refer this proposal to a Workgroup for assessment.