














UNC Modification	At what stage is this document in the process?
<h1>UNC 0714:</h1> <h2>Amendment to Network Entry Provision at Perenco Bacton terminal</h2>	<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid green; background-color: #00a651; color: white; padding: 5px; display: flex; align-items: center; justify-content: center;"> 01 Modification </div> <div style="border: 1px solid #00a651; padding: 5px; display: flex; align-items: center; justify-content: center;"> 02 Workgroup Report </div> <div style="border: 1px solid #00a651; padding: 5px; display: flex; align-items: center; justify-content: center;"> 03 Draft Modification Report </div> <div style="border: 1px solid #00a651; padding: 5px; display: flex; align-items: center; justify-content: center;"> 04 Final Modification Report </div> </div>
<p>Purpose of Modification:</p> <p>This Modification will enable the current Wobbe Index lower limit that applies between National Grid and Perenco at Bacton to be reduced from 47.2 MJ/m³ to 46.5 MJ/m³.</p>	
	<p>The Proposer recommends that this Modification should be:</p> <ul style="list-style-type: none"> considered a material change and not subject to self-governance assessed by a Workgroup <p>This Modification will be presented by the Proposer to the Panel on 16 January 2020. The Panel will consider the Proposer's recommendation and determine the appropriate route.</p>
	<p>High Impact:</p>
	<p>Medium Impact:</p> <p>GB gas transporters, interconnector operators, shippers, consumers</p>
	<p>Low Impact:</p>

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Timetable			Transporter: National Grid
The Proposer recommends the following timetable:			 philip.hobbins@nationalgrid.com
Initial consideration by Workgroup	06 February 2020		 telephone
Workgroup Report presented to Panel	16 April 2020		Systems Provider: Xoserve
Draft Modification Report issued for consultation	16 April 2020		 UKLink@xoserve.com
Consultation Close-out for representations	7 May 2020		Other: Tracy Brogan
Final Modification Report available for Panel	12 May 2020		 Tracy.Brogan@neptuneenergy.com
Modification Panel decision	21 May 2020		 telephone
Ofgem decision	25 June 2020		

1 Summary

What

This is an enabling Modification to facilitate an amendment to the Wobbe Index lower limit within the Network Entry Provisions between Perenco and National Grid at Bacton. It is proposed to reduce the limit from 47.2 MJ/m³ to 46.5 MJ/m³.

Why

Gas produced from the Cygnus field has a Wobbe Index around 1% below the existing GS(M)R lower limit, but within the emergency limit. Blending upstream of entry to the NTS is utilised to enable this new gas field to produce and deliver gas into the gas transmission network. However, since commissioning Cygnus production loss due to insufficient blend gas availability has been significant, and this loss is projected to increase from mid-2020. Alternative blending and treatment solutions will not be available in the same timeframe to mitigate impacts.

The impacts include significant loss of lower cost, lower carbon UKCS natural gas to UK consumers and a threat to the ability to Maximise the Economic Recovery of this largest single gas field in the UK in addition to that of other more mature gas fields in the Southern North Sea.

How

The Proposer is seeking to amend the Network Entry Provision described above via this enabling Modification. Approval of an exemption from the GS(M)R lower Wobbe Index limit from the HSE will be required, in a parallel process, before gas below 47.2 MJ/m³ will be able to flow to the National Grid terminal at Bacton.

2 Governance

Justification for Authority Direction

Authority Direction is proposed due to the likely material effect on security of supply and gas consumers, in addition to competition in the shipping of gas and pipeline systems impact.

Security of supply would be facilitated by enabling ongoing supply from the largest single gas field in the UK, capable of providing up to 6% of UK demand, when other upstream sources are offline.

The Modification would ratify the ability for one party to have a gas quality limit that is outside the current legal range, therefore competition issues may need to be addressed within the development of this Modification. Upstream commercial supply of blend gas is proposed to continue.

The operation of the NTS would need to be considered at Bacton in relation to the interconnectors, Great Yarmouth Power Station and the Bacton DN offtake.

No other pipeline incomers entering the NTS at Bacton have gas sources below the existing GS(M)R Wobbe Index lower limit, therefore this amendment will not unduly discriminate. The ability to flow gas out with the Wobbe Index GS(M)R limit would not apply at any other NTS entry point as a result of this proposal being implemented, however should any other party wish to apply for such an exemption at any other location it would be free to raise its own proposal and each case would be assessed on its own merits.

Requested Next Steps

This Modification should:

- be considered a material change and not subject to self-governance
- be assessed by a Workgroup

A significant, extended upstream infrastructure outage is planned to start in June 2020, limiting blend gas availability. The proposed timeframe recognises the significant commercial impact on infrastructure owners and the potential benefit for consumers if an amendment can be made in Q2 2020. This is in line with the intended timeline for the parallel process for HSE approved exemption, enabling the required contract amendments and operational changes to be implemented in May 2020.

3 Why Change?

Driver for change

The Cygnus field, owned by Neptune Energy (Operator) and Spirit Energy, is located in a previously underdeveloped area of the Southern North Sea. Cygnus Alpha started production in December 2016 and Cygnus Bravo in August 2017, with gas exported through a new 50km extension to the existing 165km ETS pipeline to Perenco's gas terminal at Bacton.

The Cygnus gas exported to Bacton has a Wobbe Index in the range of 46.6 to 46.8 MJ/m³. It commingles within the ETS pipeline with gas from Trent and Tors fields and, at sales conditions, this stream will generally range from 46.5 to 46.7 MJ/m³ and above. There are five gas pipelines flowing into the Perenco terminal (see Appendix I schematic), with all four others meeting NTS specification. Fortuitous blending takes place with gas from these fields within the Perenco terminal. In addition, a 'blend line' links the SEAL reception facilities in the neighbouring terminal and there is contractual access to a proportion of gas from this source for supplemental blending. No further infrastructure exists to link to any other gas sources in the Bacton area. The higher-pressure arrival of gas from the ETS pipeline results in the potential for a greater proportion of Cygnus gas to fill the common facilities during moments of pressure reduction on other incoming pipelines, including during pig receipt and offshore unplanned outage. To mitigate the risk of shut-in of all on-spec fields - due to gas below 47.2 MJ/m³ in the terminal unable to be received by National Grid - an additional Wobbe Index margin above 47.2 MJ/m³ is required to be met. This is managed by an automated gas quality control system, whereby on rate of change of reducing Wobbe Index on the common terminal outlet, control valves progressively close on the ETS pipeline to reduce and finally enact full shut-in of the pipeline at 47.45 MJ/m³. This system clearly also takes action in the event of reduction or loss of blend gas source.

Extended and shorter duration (planned and unplanned) offshore and onshore outages in 2017 to 2019 have resulted in frequent production curtailment and shut-in of the Cygnus field. This is of concern to the Oil and Gas Authority (OGA) as stewards of MER UK.

The situation is set to deteriorate in 2020 with planned outage of upstream infrastructure in late Q2, which will significantly impact Cygnus production for at least forty (40) days. Following this extended outage, one of the two offshore SEAL producing hubs will reroute gas from Bacton to St Fergus. Combined with the declining rates and availability of more mature blend fields, the ongoing availability of blend gas for Cygnus from existing arrangements and infrastructure has the potential to reduce appreciably.

Collaboration between the Cygnus owners, the OGA and all Bacton infrastructure owners has been strong to date and continues in order to further increase contractual access to remaining SEAL volumes for blending, prior to Q2 2020. This will limit impact when this source is available but not resolve the issue. Other solutions explored include facilities Modification to tie-in to additional sources of gas at Bacton, National Grid blending

and nitrogen removal facilities; however, these options are not achievable within the coming year. Propane injection onshore has also been considered but discounted on grounds of safety and practicality.

Analysis completed by the Cygnus Operator, indicates there were no occasions in the last 2 years where sufficient blend gas would not have been available to enable Cygnus to flow to capacity and still achieve over 47.2 MJ/m³ leaving the National Grid terminal at Bacton.

Parallel process

An exemption from the HSE, and amendment to the National Grid GS(M)R safety case, would be required to allow for the potential of gas below the existing GS(M)R lower Wobbe Index limit of 47.2 MJ/m³, to the existing lower emergency limit of 46.5 MJ/m³, to leave the National Grid terminal at Bacton. Critical to the granting of such an exemption is demonstration of no diminution in safety for domestic and industrial/commercial downstream users. Independent study work, including accredited laboratory testing of common domestic appliances, has been completed in 2019 and indicates no safety or operational issues for gas with Wobbe Index down to 46.5 MJ/m³.

To assess the feasibility of gas with lower Wobbe Index exiting the Perenco terminal, Neptune Energy have engaged with National Grid to understand any potential network impacts. Required work by National Grid, which should conclude in January 2020, includes network penetration analysis for a variety of flow/quality scenarios, a review of any Asset impacts and Flow Weighted Average CV analysis. Initial assessment of the ability to maintain GS(M)R compliant gas to the interconnectors, when in export mode, indicates routing options are available however there may be limitations to National Grid's ability to accept gas below 47.2 MJ/m³ during some planned maintenance periods. The impact on other local offtakes to Bacton terminal, in particular Great Yarmouth power station and the Bacton DN offtake would also need to be assessed.

Potential Impact

Ongoing and increasing production loss from the Cygnus field has several effects. During the planned infrastructure outage in Q2 to Q3 2020 alone, the reduction in lower cost, lower carbon gas to the UK from the Cygnus field alone could range from 94 to >350 MCM. Production loss will add to this on an ongoing basis from Q3 2020, when connected sources of blend gas at Bacton reduce. Increased UKCS gas and reduced reliance on imported sources is recognised to have the positive effect of applying downward pressure on wholesale gas price and benefit security of supply.

The limitations affecting the field has delayed further investments and will likely continue to do so if the framework does not evolve.

4 Code Specific Matters

Reference Documents

Gas Safety (Management) Regulations GS(M)R 1996

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

Knowledge/Skills

No additional knowledge/skills, above those available, required to assess this Modification.

5 Solution

This Modification seeks to amend the Network Entry Provision between Perenco and National Grid at Bacton. It is proposed to reduce the Wobbe Index lower limit from 47.2 MJ/m³ to 46.5 MJ/m³.

6 Impacts & Other Considerations

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

No impact identified.

Consumer Impacts

The Wobbe Index of gas leaving the National Grid terminal at Bacton is over 47.2 MJ/m³ under all reasonable scenarios. Independent study work completed in 2019 by DNV GL, including accredited laboratory testing by BSi, indicates no reduction in safety for gas of the proposed quality. A benefit to consumers through downward pressure on gas price could result, through increased UKCS gas flow. Security of supply would be facilitated by enabling ongoing supply from the largest single gas field in the UK, capable of providing up to 6% of UK demand, when other upstream sources are offline.

Cross Code Impacts

No impact identified.

EU Code Impacts

No impact identified.

Central Systems Impacts

No impact identified.

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.	Positive
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;	Positive

(ii) between relevant suppliers; and/or (iii) between DN operators (who have entered into transportation arrangements with other relevant gas transporters) and relevant shippers.	
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

The implementation of this proposal will better facilitate the Relevant Objectives of the UNC:

- The efficient and economic operation of the pipeline system is positively impacted by this Modification because it would facilitate additional volumes of gas to be processed through the existing network infrastructure than would otherwise be the case.
- At the same time, the proposal will secure greater flexibility in the transportation of gas allowing more sources to be 'eligible' to enter the NTS and increasing the ability to manage potential outages at system level; Securing of effective competition between Shippers would be better facilitated by maximising available UKCS production into the NTS. Greater supply diversity would result in more shippers bringing gas to the UK and making the NBP more competitive.

8 Implementation

The Proposer is seeking implementation by May 2020 in order to facilitate contractual and operational activities ahead of the extended blend gas outage in June 2020.

9 Legal Text

As this is an enabling Modification, no UNC legal text is proposed.

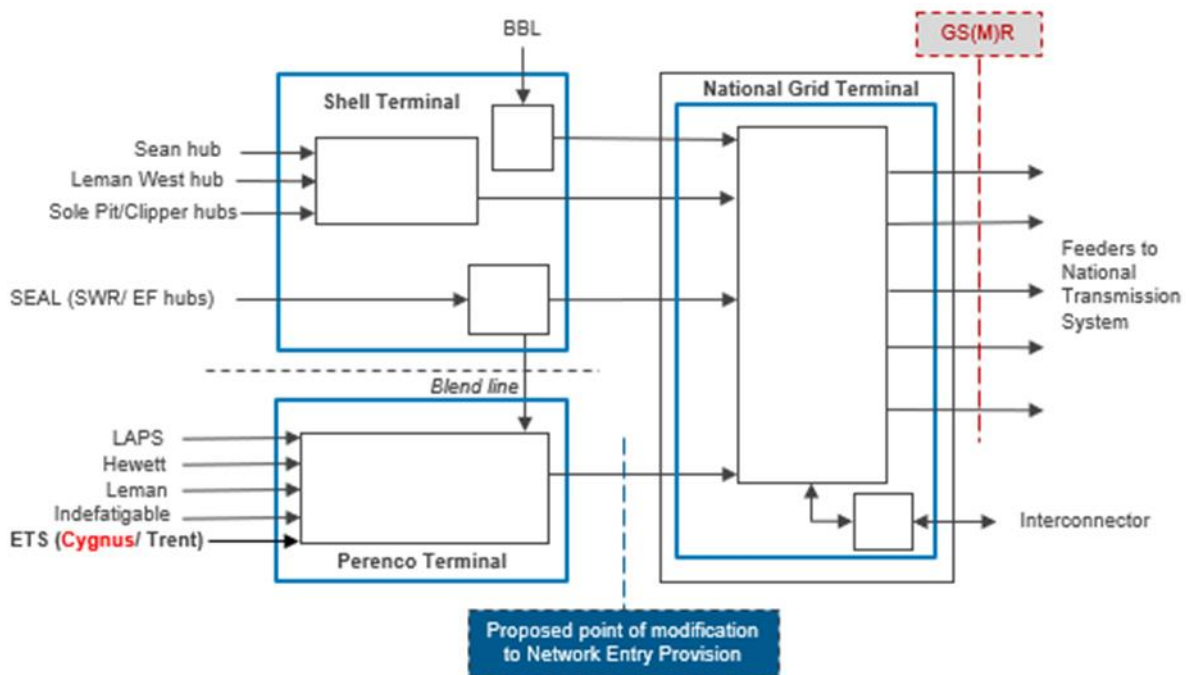
10 Recommendations

Proposer's Recommendation to Panel

Panel is asked to:

- Agree that Authority Direction should apply
- Refer this proposal to a Workgroup for assessment.

Appendix I – Bacton Terminals schematic



Appendix II – Bacton Terminals Aerial photograph

