












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>01 Modification</div> <div>02 Workgroup Report</div> <div>03 Draft Modification Report</div> <div>04 Final Modification Report</div>
<p><b>Purpose of Modification:</b></p> <p>This Modification will enable the current Wobbe Index lower limit that applies between National Grid and Perenco at Bacton to be temporarily reduced from 47.2 MJ/m<sup>3</sup> to 46.5 MJ/m<sup>3</sup>.</p>	
	<p>The Proposer recommends that this Modification should be:</p> <ul style="list-style-type: none"> <li>subject to self-governance</li> <li>assessed by a Workgroup</li> </ul> <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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			 telephone
Timetable			Transporter:
<b>The Proposer recommends the following timetable:</b>			National Grid
Initial consideration by Workgroup	06 February 2020		 <a href="mailto:philip.hobbins@nationalgrid.com">philip.hobbins@nationalgrid.com</a>
Workgroup Report v1.0 presented to Panel	16 April 2020		
Workgroup Report v2.0 presented to Panel	21 May 2020		 telephone
Draft Modification Report issued for consultation	21 May 2020		Systems Provider:
Consultation Close-out for representations	11 June 2020		Xoserve
Final Modification Report available for Panel	16 June 2020		
Modification Panel decision	16 July 2020		 <a href="mailto:UKLink@xoserve.com">UKLink@xoserve.com</a>
Ofgem decision (if required)	20 August 2020		
Amended to reflect Workgroup Report v2.0			Other:
			Tracy Brogan
			 <a href="mailto:Tracy.Brogan@neptuneenergy.com">Tracy.Brogan@neptuneenergy.com</a>
			 telephone

## 1 Summary

### What

This is an enabling Modification to facilitate a temporary 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/m<sup>3</sup> to 46.5 MJ/m<sup>3</sup>.

### Why

Gas produced from the Cygnus field has a Wobbe Index around 1% below the existing Gas Safety (Management) Regulations, (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 early 2021. Alternative upstream 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. The proposed limit of 46.5 MJ/m<sup>3</sup> is below the GS(M)R lower limit, therefore gas with a Wobbe Index within the range of 46.5 MJ/m<sup>3</sup> and 47.2 MJ/m<sup>3</sup> would only be accepted into the National Grid terminal where a compliant blend of gases can be achieved.

## 2 Governance

### Justification for Self-Governance

*The modification:*

*(i) is unlikely to have a material effect on:*

- (aa) existing or future gas consumers; and*
- (bb) competition in the shipping, transportation or supply of gas conveyed through pipes or any commercial activities connected with the shipping, transportation or supply of gas conveyed through pipes; and*
- (cc) the operation of one or more pipe-line system(s); and*
- (dd) matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies; and*
- (ee) the uniform network code governance procedures or the network code modification procedures; and*

*(ii) is unlikely to discriminate between different classes of parties to the uniform network code/relevant gas transporters, gas shippers or DN operators.*

The Modification was previously assessed as requiring Authority Direction due to potential competition impacts as, subject to HSE approved exemption to GS(M)R being granted, gas with Wobbe Index below the existing lower limit could flow to all downstream connected parties.

The effect of this amended Modification on competition is no longer deemed material due to the restricted time period it applies for. Non-compliant gas will also not reach consumers or downstream connected parties.

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 arrangement at any other location it would be free to raise its own proposal and each case would be assessed on its own merits. Existing upstream commercial arrangements for blend gas supply will also remain unchanged.

## Requested Next Steps

This Modification should:

- be considered a non-material change and subject to self-governance
- be assessed by a Workgroup

A significant, extended upstream infrastructure outage is planned to start in May 2021, 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 prior to this outage.

## 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/m<sup>3</sup>. 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/m<sup>3</sup> 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/m<sup>3</sup> in the terminal unable to be received by National Grid - an additional Wobbe Index margin above 47.2 MJ/m<sup>3</sup> 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/m<sup>3</sup>. 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 2020 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 2021 with planned outage of upstream infrastructure in Q2, which will significantly impact Cygnus production for up to 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 2021. 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 service 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.

### Potential Impact

Ongoing and increasing production loss from the Cygnus field has several effects. During the planned infrastructure outage in Q2 2021 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 Q2 2021, 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 for a specified time period of not more than 40 consecutive days starting not earlier than 1<sup>st</sup> May 2021 and not later than 30<sup>th</sup> June 2021. It is proposed to reduce the Wobbe Index lower limit from 47.2 MJ/m<sup>3</sup> to 46.5 MJ/m<sup>3</sup> for this period subject to the conditions set out below.

Gas with Wobbe Index from 46.5 to 47.2 MJ/m<sup>3</sup> from the Perenco terminal incomer at Bacton National Grid terminal will be accepted provided sufficient higher Wobbe Index gas is available to blend, such that National Grid is able to ensure that all feeders that convey gas away from its terminal and all connected parties at Bacton (Great Yarmouth power station, IUK, BBL and the Cadent DN offtake) receive gas with a WI  $\geq$  47.2 MJ/m<sup>3</sup>. Flows can be configured within the pipework arrangement at NG Bacton to route available on-spec gas to commingle with gas from the Perenco terminal at the earliest opportunity on entry to NG terminal. If insufficient gas is available to ensure the existing GS(M)R limits for all feeders and offtakes are met, the

allowable Perenco terminal flow will be reduced and, if necessary, cease immediately via the Transportation Flow Advice process.

Under normal circumstances, with all fields that deliver gas into the Perenco terminal online, the WI of gas leaving the Perenco terminal is expected to be above 47.2 MJ/m<sup>3</sup> (in the range 47.17 to 47.62 MJ/m<sup>3</sup>). The range of expected WI with one of four on-spec offshore hubs completely offline is 47.03 to 47.35 MJ/m<sup>3</sup>. Less than 1 MCM/day would be required to blend from 47.0 MJ/m<sup>3</sup>, with around ten times this rate generally available. In a worst case scenario with Cygnus only flowing from the Perenco terminal, 3.5 MCM/day would be required to ensure the NG terminal remained GS(M)R compliant. It is intended that the required flow rates and Wobbe Index of on-spec gas will be continually monitored by National grid such that any reduction below the minimum flow required will trigger immediate curtailment action of Perenco supplies before blending occurs, thereby ensuring that no gas with a Wobbe Index lower than 47.2 MJ/m<sup>3</sup> penetrates into the NG terminal beyond the point at which the relevant gas streams meet.

## 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

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.

If this proposal is implemented, the calorific value of gas entering the NTS at Bacton is expected to be lower than would otherwise be the case. However, analysis carried out by National Grid and presented to the March 2020 meeting of the 0714 workgroup indicates a low likelihood of flow weighted average CV capping occurring as a consequence and hence a low risk that consumers would be charged materially differently to the energy received.

### 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; (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

The implementation of this proposal would better facilitate the following Relevant Objectives:

- 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; 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 July 2020 in order to facilitate contractual and operational activities ahead of the extended blend gas outage in Q2 2021.

## 9 Legal Text

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

## 10 Recommendations

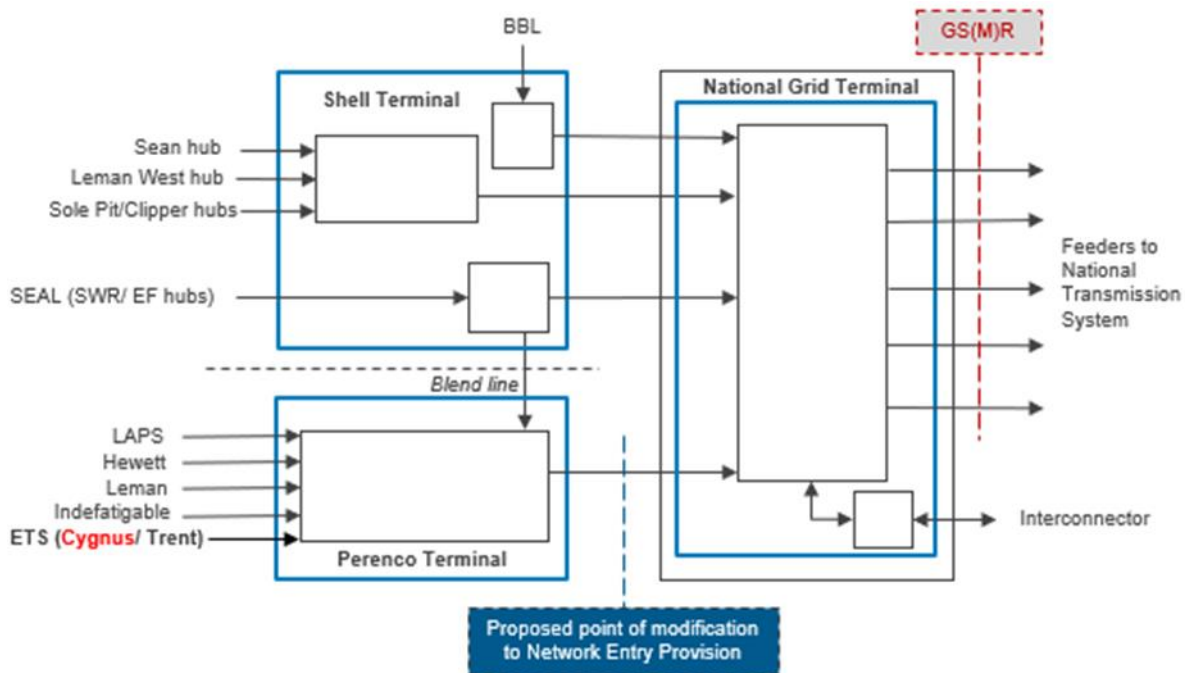
### Proposer's Recommendation to Panel

Panel is asked to:

- Refer this proposal to a Workgroup for assessment.

## 11 Appendices

### Appendix I – Bacton Terminals schematic





Appendix II – Bacton Terminals Aerial photograph

