









UNC Request	At what stage is this document in the process?
<h1 data-bbox="124 333 724 427">UNC 0849R:</h1> <h2 data-bbox="132 519 1114 660">Commercial Framework Review to Enable Hydrogen Blending</h2>	<div data-bbox="1187 331 1457 568"> <div data-bbox="1187 331 1457 405">01 Request</div> <div data-bbox="1187 412 1457 486">02 Workgroup Report</div> <div data-bbox="1187 492 1457 568">03 Final Modification Report</div> </div>
<p>Purpose of Request: To review the market principles and existing commercial framework in order to assess their compatibility with blending hydrogen into the networks and explore the required amendments where necessary. Ensuring the amended regime is simple and easy to implement whilst also remaining adaptable and consistent with relevant obligations.</p>	
<p>Next Steps: The Proposer recommends that this Request should be assessed by a Workgroup. This Request will be presented by the Proposer to the Panel on 18 May 2023.</p>	
<p>Impacted Parties: High: GB Gas Market Participants, Distribution Network Operators, Transmission Network Operator, IGTs, Hydrogen producers, Ofgem Low: None:</p>	
<p>Impacted Codes: UNC (TPD, OAD), Independent Gas Transporters UNC</p>	

Contents		 Any questions?
1 Request	3	Contact: Joint Office of Gas Transporters
2 Impacts and Costs	5	 enquiries@gasgovernance.co.uk
3 Terms of Reference	9	 0121 288 2107
4 Recommendation	10	Proposer: Megan Bray
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This document is a Request, which will be presented by the Proposer to the Panel on 18 May 2023.		 07731 994522
The Panel will consider the Proposer's recommendation and agree whether this Request should be referred to a Workgroup for review.		Transporter: National Gas NTS
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1 Request

Why is the Request being made?

Hydrogen is expected to play a vital role in transitioning to a low carbon future. Blending hydrogen with natural gas in the existing gas infrastructure can support the transition to a net zero future, with the added benefit of kick starting the hydrogen economy and increasing supply chain readiness. Assumptions are that initially, Hydrogen blending will be utilised as a reserve off-taker, when Producers have a volume of hydrogen left over after demand has been met within the 100% hydrogen clusters. Therefore, hydrogen volumes available for blending may vary depending on the cluster demand for a given day.

UK Government are set to make a decision in principle on hydrogen blending into the distribution networks in 2023, with a decision for transmission likely to follow. Indications are that this will be positive, following the completion of the necessary network safety case review by the Health and Safety Executive (HSE). The existing market frameworks assume the conveyance and trading of a relatively homogeneous natural gas. Therefore, the commercial frameworks need to be reviewed to ensure their compatibility with blending hydrogen into the gas networks (transmission and distribution) and the necessary amendments identified and developed.

Scope

As part of the Gas Goes Green Work Programme, the networks (Distribution and Transmission) have been involved in a series of workshops to develop an initial thought piece on existing commercial framework compatibility and the required amendments necessary. During these workshops, the existing market framework legislative hierarchy shown in Figure.1 including, Primary Legislation (Gas Act), secondary legislation (e.g. Gas Safety Management Regulations), Licence (Transporter), UNC and agreements (NEA) were reviewed, and the relevant amendments to enable initial hydrogen blend injections into the networks were explored, in accordance with agreed assumptions and parameters.

Key assumptions suggested by networks:

(Finalised list of assumptions to be reviewed and agreed with industry)

- Gas Safety Management Regulations (GS(M)R) will be updated following a HSE safety evidence review to accept volumes of up to 20% hydrogen into the networks.
- We believe required amendments will not impact Primary and Secondary Legislation, such as the Gas Act and Gas Calculation of Thermal Energy Regulation (GCoTER).
- We expect initial hydrogen blend percentage volumes to not exceed C.5% to help manage risk of Calorific Value (CV) capping within the networks as well as managing blend variability for end users. For blends above 5% the future billing methodology may also need to be reviewed.

Summary of the Networks initial view on relevant commercial amendments to enable hydrogen blending can be seen in Figure 1 below:

Fig.1 High-level overview of recommended amendments across the market pillars – (Those amendments highlighted in green are related to NTS only and yellow DNs only).

	Primary Legislation	Regulations	License	Code (MTC)	Agreements
Connections			Amend GTL SC D12: Non-absolute condition for strategic connection scenario. Additional 4B: rules on pre-connection coordination & planning between NTS and DN's.	Amend TPD SC V General: Connection entry timescales Addition: Communication between networks on connection locations	Amend NEA: Reference to 'reverse compression' Additional: obligation for NO to notify of expected Natural Gas
Gas Quality		Amend GS(M)R: to allow increased hydrogen content			Amend NEA: Reference to 'reverse compression'
System Operation				Additional OAD Section F & TPD section I- Formalised communications between networks to manage blend Future consideration- (20% blend) imbalance of volume	NEA addition- ability to reduce or interrupt blend injections
Balancing					
Trading					
Capacity					NEA amend- limits on injection flow rates and profile
Charging			Additional GT License Sp.C- 'blend point' classification?	(off-network blend only) Amend TPD section I- NTS connecting facility	(off network blend only) NEA & NEA's – MOD 8080 'reverse compression' concept for net entry charge

The purpose of the Review Group would be to review this initial thought piece with industry by deep diving into each market principal area (see below) and the associated legislation, in order to develop and agree on the final commercial amendments required. From this a final Modification submission can then be developed and agreed.

System Operation	Balancing	Trading	Gas Quality	Capacity	Charging	Connections
<p>System Operation is responsible for the efficient, safe and reliable delivery of gas supply.</p> <p>Great Britain's gas supply is impacted by a variety of factors including declining UK Continental Shelf gas supplies and changing gas supply mix due to increasing reliance on imported gas (i.e. through the interconnectors to Europe and through access to the global market in the form of Liquefied Natural Gas).</p>	<p>Balancing is ensuring that the same amount of gas is put into the system as is taken out.</p> <p>Companies (shippers) transport gas through the National Transmission System from supply entry points to demand exit points. They are incentivised so that every day they put as much gas into the system as they take out, to match inputs with outputs.</p>	<p>Gas trading is a tool to enable market participants to balance the gas system, hedge potential supply risk and optimise financial performance.</p> <p>Shippers can trade between themselves on several markets linked to the National Balancing Point (NBP) to balance their portfolios.</p>	<p>The quality of gas that enters the gas networks must be within pre-determined limits, primarily for consumer safety.</p> <p>Gas Safety Management Regulations (GS(M)R) play a critical role in making sure the gas system operates safely and reliably.</p> <p>Gas quality limits are monitored at system entry points and at specified points across the gas system.</p>	<p>National Grid Gas Transmission makes entry and exit capacity available on the National Transmission System for companies (shippers) to transport gas from supply entry points to demand exit points.</p> <p>Capacity booking (i.e., capacity charges) includes the investment required for connections and to reinforce the network for new connections.</p>	<p>Billing consumers for gas consumed is a key aspect of charging.</p> <p>In addition, gas transporters (National Grid Gas Transmission and the Gas Distribution Networks) are allowed by Ofgem to earn a specified level of return on their assets through network charges. The cost of building and extending natural gas assets relates to the capacity they provide. The transporters therefore raise revenue from capacity (and commodity) charges.</p>	<p>The National Transmission System and the Gas Distribution Networks have separate connection processes. Both the transmission and distribution networks offer three types of connection: entry, exit and storage.</p> <p>Specific to the National Transmission System, in addition to the connections process customers may apply to reserve capacity for when their connection becomes operational through the PARCA process (Planning and Advanced Reservation of Capacity Agreement).</p>

The structure and agenda for the recommended workshops is outlined below, however content detail may be subject to change which will be driven by the discussions with the industry.

Workshop 1

- Introduction to Hydrogen blending
- Review of current policy position, timescales and future requirements.
- Review and agree on project parameters
- Introduction into legislative hierarchy covering gas quality
- Review of required amendments to gas quality commercial framework

Workshop 2

- Introduction into legislative hierarchy covering balancing and trading
- Agree key assumptions
- Review of required amendments to balancing and trading commercial framework

Workshop 3

- Introduction into legislative hierarchy covering system operation and charging
- Agree key assumptions
- High-level summary of the Functional Specification options for Hydrogen Blending Infrastructure outlined within the Gas Goes Green Work Programme¹
- Review of required amendments to system operation and charging commercial framework

Workshop 5

- Summary of Connections and Capacity Methodology options explored within the Gas Goes Green Work Group
- Agree key assumptions
- Review/ feedback on connection options
- Introduction into legislative hierarchy covering connections and capacity
- Review of required amendments to connections and capacity commercial framework

Workshop 6

- (Continued) review of required amendments to connections and capacity commercial framework
- Summarise and agree final commercial amendments required to enable hydrogen blending
- Agree next steps for modification development

Impacts & Costs

The key impacts of the request are currently considered to be:

- Possible changes to governance documents such as Licence and UNC to reflect amendments to existing market principles to enable hydrogen blending.

¹ The Functional Specification for Hydrogen Blending Infrastructure is a separate piece of work currently being completed within the Gas Goes Green Programme. This report sets out the overarching principles and minimum functional requirements to permit safe, efficient, and fit-for purpose grid injection of hydrogen and blending with natural gas. Ownership and responsibility for operation and maintenance of such facilities may rest with the GT, the DFO or a combination of the two. Within the report, three models are envisaged and outlined.

Recommendations

The objective of this Request is to review the existing commercial framework and identify the relevant commercial amendments required with the wider industry and raise suitable enabling modifications.

This Request should be issued to Workgroup for consideration.

2 Impacts and Costs

Consideration of Wider Industry Impacts

Possible wider industry impacts and costs of the output of the Request are highlighted below. However, until more detail is worked through, specific impacts cannot be identified.

Impacts

Impact on Central Systems and Process	
Central System/Process	Potential impact- amendments to processes may be recommended by this review.
UK Link	•
Operational Processes	•

Impact on Users	
Area of Users' business	Potential impact- any changes to market principles could affect the below areas of Users' business.
Administrative and operational	• Connections administration
Development, capital and operating costs	• Hydrogen ready assets (analysers)
Contractual risks	•
Legislative, regulatory and contractual obligations and relationships	• Blend volume limits/ scale back

Impact on Transporters	
Area of Transporters' business	Potential impact- any changes to market principles could affect the below areas of Transporter's business.
System operation	• Communication / Coordination between networks / CV Management / Operational Planning
Development, capital and operating costs	• Hydrogen ready assets
Recovery of costs	•
Price regulation	• Net entry charge (off-network blend)
Contractual risks	•
Legislative, regulatory and contractual obligations and relationships	• Blend injection curtailment / scale back

Impact on Transporters	
Standards of service	•

Impact on Code Administration	
Area of Code Administration	None identified
Modification Rules	•
UNC Committees	•
General administration	•
DSC Committees	•

Impact on Code	
Code section	Potential impact- Various sections of the Code may require amendments
	• (As shown in Figure 1)

Impact on UNC Related Documents and Other Referenced Documents	
Related Document	None Identified
Network Entry Agreement (TPD I1.3)	•
General	Potential Impacts
Legal Text Guidance Document	• None identified
UNC Modification Proposals – Guidance for Proposers	• None identified
Self Governance Guidance	• None identified
TPD	Potential Impacts
Network Code Operations Reporting Manual (TPD V12)	• Blend hub locations report? / network capability heat map
UNC Data Dictionary	• None identified
AQ Validation Rules (TPD V12)	• None identified
AUGE Framework Document	• None identified
Customer Settlement Error Claims Process	• None identified
Demand Estimation Methodology	• None identified
Energy Balancing Credit Rules (TPD X2.1)	• None identified
Energy Settlement Performance Assurance Regime	• None identified

Impact on UNC Related Documents and Other Referenced Documents	
Guidelines to optimise the use of AQ amendment system capacity	<ul style="list-style-type: none"> • None identified
Guidelines for Sub-Deduct Arrangements (Prime and Sub-deduct Meter Points)	<ul style="list-style-type: none"> • None identified
LDZ Shrinkage Adjustment Methodology	<ul style="list-style-type: none"> • None identified
Performance Assurance Report Register	<ul style="list-style-type: none"> • None identified
Shared Supply Meter Points Guide and Procedures	<ul style="list-style-type: none"> • None identified
Shipper Communications in Incidents of CO Poisoning, Gas Fire/Explosions and Local Gas Supply Emergency	<ul style="list-style-type: none"> • None identified
Standards of Service Query Management Operational Guidelines	<ul style="list-style-type: none"> • None identified
Network Code Validation Rules	<ul style="list-style-type: none"> • None identified
OAD	Potential Impact
Measurement Error Notification Guidelines (TPD V12)	<ul style="list-style-type: none"> • None identified
EID	Potential Impact
Moffat Designated Arrangements	<ul style="list-style-type: none"> •
IGTAD	Potential Impact
DSC / CDSP	Potential Impact
Change Management Procedures	<ul style="list-style-type: none"> •
Contract Management Procedures	<ul style="list-style-type: none"> •
Credit Policy	<ul style="list-style-type: none"> •
Credit Rules	<ul style="list-style-type: none"> •
UK Link Manual	<ul style="list-style-type: none"> •

Impact on Core Industry Documents and other documents	
Document	Potential impact
Safety Case or other document under Gas Safety (Management) Regulations	<ul style="list-style-type: none"> • GS(M)R specifications review (Hydrogen content)
Gas Transporter Licence	<ul style="list-style-type: none"> • Rules on pre-connection coordination & planning between NTS and DNs.

Other Impacts	
Item impacted	Potential impact
Security of Supply	•
Operation of the Total System	• Network re-configuration
Industry fragmentation	•
Terminal operators, consumers, connected system operators, suppliers, producers and other non code parties	• Potential impacts – will all meter's work?

3 Terms of Reference

Topics for Discussion

- Understanding the objective (Why Change?)
- Agree “Scope” of hydrogen blending framework review including assumptions and parameters
- Explore “no regrets” solutions to meet objective of enabling first initial hydrogen blend injections with minimal change to existing frameworks
- Identification of issues that have dependency of wider policy decisions
- Develop necessary amendments to commercial frameworks (including business rules if appropriate)
- Assessment of potential impacts of the Request, including but not limited to Consumer and System Impacts
- Assessment of implementation costs of any solution identified during the Request
- Assessment of Code specific matters and potential impacts on other energy codes
- Consideration of potential performance assurance impacts

Outputs

Agree commercial framework changes required with the wider industry. Produce a Workgroup Report including new business rules for submission to the UNC Modification Panel, containing the assessment and recommendations of the Workgroup including a draft Modification where appropriate.

Composition of Workgroup

The Workgroup is open to any party that wishes to attend or participate.

A Workgroup meeting will be quorate provided at least two Transporter and two User representatives are present.

Hydrogen Producers, Electricity Producers, Industrial End Consumers (i.e. Power Generators and Chemical Processers) and IGTs will also be invited to attend the Workgroup.

Meeting Arrangements

Meetings will be administered by the Joint Office and conducted in accordance with the Code Administration Code of Practice (<https://www.gasgovernance.co.uk/cacop>)

We would recommend an independent Workgroup from Distribution and Transmission to allow representatives from both work streams to attend and contribute. We also recommend 6 Workgroup sessions with a duration of 3 hours each.

4 Recommendations

Proposer's Recommendation to Panel

The Proposer invites the Panel to:

- Determine that this Request progress to Workgroup for review with a report back to the Panel in December 2023.