

UNC Workgroup 0849R Minutes
Commercial Framework Review to Enable Hydrogen Blending
Wednesday 22 November 2023
via Microsoft Teams

Attendees		
Rebecca Hailes (Chair)	(RHa)	Joint Office
Helen Bennett (Secretary)	(HB)	Joint Office
Megan Bray (Proposer)	(MB)	National Gas Transmission
Alexis Birchall	(AB)	Northern Gas Networks
Alex Green	(AG)	ESP
Andrew Firbank	(AF)	DESNZ
Andy Clasper	(AC)	Cadent
Anna Shrigley	(ASh)	ENI Global Marketing & Trading
Anne Jackson	(AJ)	REC Code Manager
Antony Miller	(AM)	South Hook Gas
Bethan Winter	(BW)	Wales & West Utilities
Brett Ryan	(BR)	Hydrogen UK/Gemserv
Charlotte Gilbert	(CG)	BU-UK
David Mitchell	(DM)	SGN
Edward Allard	(EA)	Cadent
Emmanouil Mavroudis	(EM)	Ceres Energy Limited
Emma Robinson	(ER)	EON Energy
Johana Duran Santos	(JDS)	SGN
Joseph Leggett	(JL)	Interconnector
Julie Cox	(JCx)	Energy UK
Julia Komar	(JK)	Energy Networks Association
Lauren Jauss	(LJ)	RWE
Louise Hellyer	(LH)	TotalEnergies Gas & Power
Mariachiara Zennaro	(MZ)	Centrica
Mark Field	(MF)	Sembcorp
Michael Payley	(MP)	CDSP
Michelle Niits	(MN)	CDSP
Nick King	(NK)	CNG Services
Phoebe Finn	(PF)	Statera Energy
Radhika Rajendran	(RR)	CDSP
Richard Fairholme	(RF)	Uniper
Ritchard Hewitt	(RHe)	Hewitt Home & Energy Solutions
Shiv Singh	(SS)	Cadent
Steve Britton	(SB)	Cornwall Insight
Victoria Robinson	(VR)	DESNZ

The Workgroup Report is due to be presented at the UNC Modification Panel by 14 December 2023.

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

Please note these minutes do not replicate/include detailed content provided within the presentation slides, therefore it is recommended that the published presentation material is reviewed in conjunction with these minutes. Copies of all papers are available at: <https://www.gasgovernance.co.uk/0849/041023>

1. Introduction and Status Review

Rebecca Hailes (RHa) welcomed everyone to the meeting.

1.1 Approval of Minutes (04 October 2023)

Nick King (NK) provided an update to the minutes. RH provided a view of the updated minutes; the amended minutes were approved and will be published.

The minutes of the previous meeting were approved.

1.2 Approval of Late Papers

The slide pack for the meeting had some additional slides (slides 16-22) submitted later than the rest of the pack. The Workgroup agreed to consider the slides.

1.3 Review of Outstanding Actions

Timeline

MB advised Workgroup that the Business Rules are currently being defined. She also advised that the Energy Networks Association (ENA) have appointed KPMG to look at the Roadmap. KPMG is looking to attend the Workgroup 0849R meeting being held on 09 January 2024.

ENA will be leading a group of Network Workshops and this Workgroup 0849R will be used to feedback on any emerging topics that come out of the Workshops.

Some Workgroup participants (Julie Cox (JCx) and Ritchard Hewitt (RHe) expressed their concern that the KPMG Workshops will just be with Networks and stressed that it is not just GB Networks that should be invited to the conversation, this should include European Interconnectors, Shippers and Suppliers.

MB advised it is suggested that this Workgroup 0849R be put on hold and reinstated when the outcome of the ENA Workshops is known, which is likely to be the end of May 2024. With this in mind a Workgroup extension request will be made to the UNC Modification Panel to extend this Review Group to September 2024 making it clear that this UNC Workgroup will pause after the January meeting until May 2024, an Interim Report will be presented to the January 2024 UNC Modification Panel.

Review of National Gas Transmission Action Tracking List (*please refer to the Issues and Actions Tracker published here: <https://www.gasgovernance.co.uk/0849/221123>*).

MB led a review of the Issue Tracking List as follows:

1a - Deblending:

Do we need to consider de-blending the commercial framework as part of this workgroup? If not, who will be looking at this and when?

MB advised that the inclusion of this topic is under consideration to be included in the final Modification. Victoria Robinson from the Department of Energy Security and Net Zero (DESNZ) provided the view that they would want to consider that it might be needed, and they are currently reviewing the consultation responses and waiting to see what comes out of the Safety Case. She added it is difficult to say at this stage whether deblending might be needed.

MB noted this will be put into the additional piece of work that needs to be reviewed by KPMG for ENA.

1b – CCGT compatibility with H2 blend

CCGT's Operation can only burn up to 2-5% H2 blend. Beyond this, they are not covered by OEM warranties.

JCx noted that the sequencing of events will need consideration suggesting that the UNC would not be able to be changed before the HSE makes any decision. MB advised there is time for consideration once the safety evidence is available, expected January 2025, a decision can then be made to include this in the final Modification.

Mark Field (MF) noted that he supports the idea of blending and understands there might not need to be a UNC change, but sees a benefit. MB confirmed she will raise this with KPMG.

MF went on to say, that two perspectives are being heard, one is that a 20% blend will be acceptable, and one that a 20% blend is not and there needs discussions to be held to bridge the gaps of the two differing views.

2 – CCUS (Carbon Capture Use and Storage)

DESNZ want CCUS networks to be fully utilised, with the possibility of penalties if they are not.

MB clarified there is no direct impact with UNC, and this is more of a consideration for HSE.

Emmanouil Mavroudis (EM), regarding Combined-Cycle Gas Turbine (CCGT) compatibility, asked for consideration of compressed natural gas stations to be added to the Tracker. MB confirmed this will be added.

5a) GCoTER (Gas Calculation of Thermal Energy Regulations)

Other aspects of GCOTER include gas temperature, pressure correction and compressibility factor. Has this been covered adequately within the Hydeploy programme, does it need to be further considered within 0849R?

AJ asked, as noted when Dave Lander presented to Workgroup 0849R, whether global warming effects have been taken into consideration, and MB agreed to confirm if they have.

New Action 1101: 5a) GCoTER – National Gas Transmission (MB) to confirm if the global warming effects have been taken into consideration.

6) Limitation to blend volume percentages

Consideration as to how lower limits of blend volume percentage for initial injections could be outlined. Through code or agreed within Connection Agreements?

When Jcx commented that this may sit more with DESNZ rather than HSE, VP advised that HSE will be looking at this and it will need to be considered further. DESNZ consulted on this to an extent and now needs to consider what extra evidence is required.

RHe commented that the European initial view is for a 5% blend, and if cross-border flows are to be maintained, maybe some combination between GB and Europe is needed. VR clarified that the 20% is for distribution level blending only, therefore this would not impact the EU.

Richard Fairholme (RF) commented on the presentation that was given to the last Transmission Workgroup where it was noted that a 5% max blend is being looked at and RF commented that the aim of 20% may need to be scaled back and the focus should be more around 2-5%.

JCx provided a link to the ENTSOG Gas Quality Workshop: <https://www.entsog.eu/entsog-gas-quality-workshop-2023> which was held on 15 November 2023.

Anna Shrigley (ASh) noted that almost 90% of gas feeds into Distribution Networks. Assuming the Gas Safety Management Regulations (GSMR) apply, if a 20% blend is to be allowed on the NTS what will happen if the DNs are not able to facilitate connections, should GSMR be considered separately? MB advised that GSMR could have separate requirements for Distribution and Transmission, and she has included this within the assumptions.

NK shared his observation of managing gas into the total system through the Network Entry Agreements (NEAs) and that to change the NEA, for any particular site, requires agreement. NK suggested there needs to be a Governance mechanism for making the changes to the NEA which may entail a Modification to be raised for each of the Entry points.

RHe said that GSMR limits being different between Transmission and Distribution Networks should be raised as an issue.

When Bethan Winter (BW) confirmed that Network Entry Provisions for DNs are dealt with differently, MB clarified that this has been captured in the Tracker, item 12b.

NK agreed to liaise offline with BW regarding GSMR already differentiating between Transmission compared to Distribution Networks and changing the NEA.

9b)- European Interconnector Document

Any changes made to UNC may impact EID or may require changes in EID.

KPMG has completed a review of all UNC documents including EID.

Current assumptions are that there will not be any changes to EID as hydrogen blend gas flows across interconnectors can be managed through the entry/exit agreements, however if de-blending technology is required at IPs due to incompatibility of hydrogen provisions with our connected TSO, then a further review may be necessary.

14)- Command and Control

Technical solution required within NEA to ensure maximum H2 blend rates are not exceeded. Require a tool to guarantee a change in flow before emergency phase is reached. Could onsite storage be solution for this?

Consideration needs to be given to how to book capacity.

15)- H2 energy to volume difference

Hydrogen has a lower energy to volume ratio than natural gas.

This topic will require future consideration and could impact balancing for example, there may need to be a calculation to identify the difference in energy.

16) - Offtake Profile Notices for H2 blend

For blending it may be necessary to move to forecast in energy rather than volume, which could lead to required changes within OAD if new processes are relevant.

MB advised this action is being closed.

BW explained that an output from a Section I project suggests that the accuracy is good enough to send comms in volume and that tolerances around OPNs are sufficient.

17) Free market approach with capacity protection (first come first serve)

H2 producers will require protection when connecting to network to prevent later producers from connecting upstream and sterilising their blend capacity.

MB advised this is being discussed with the Capacity Team and the National Gas Transmission Capacity Constraint tools need to be reviewed.

It was suggested there may need to be provisions in place to apply protection to connections.

18a) - Free market approach with Capacity Allocation Mechanism (optimised approach)

Development of a centrally organised capacity allocation mechanism to manage blend capacity to create locational signals in a free market approach.

MB advised that Gemini system updates would be required with timescales likely to be significant, this would also be a more costly approach.

18b) - Nominations

Ability to raise Input nominations for hydrogen to blend may be necessary if a mechanism to optimise blend capacity is progressed but also if hydrogen is booked through existing capacity products as SO would need to know physical input of hydrogen into the network. (Transmission only)

BW noted that the NEA would ask for biomethane in energy only and may need more detailed information for blending sites.

RF commented that Auctions are only needed if there is genuine competition between parties for the same product/capacity at the same point, if this is not expected then an application approach is fine.

A Workgroup participant suggested there is a need to differentiate between hydrogen and natural gas and be able to differentiate between differing types of nomination.

NK clarified the correct terminology that should be used:

Notifications indicating physical flows,

Nominations made for energy balancing.

Actions Tracking List

MB updated the Workgroup on the Actions Tracking List which is documented on the Issues and Actions Tracker published here: <https://www.gasgovernance.co.uk/0849/221123>.

RHa summarised the following agreements:

New Action 1102: Joint Office (RHa) to update the Workgroup Report ready for publication for the Next Meeting on 09 January 2024.

A Workgroup Extension request to September 2024 noting that UNC Workgroups will be on hold whilst KPMG hold their Workshops (February – May).

0701: Action 2 – GCOTER: Guv Dosanjh (GD) to provide a link to the report that looks at the gas temperature on the HyDeploy project.

Update: Carried Forward

0703: National Gas Transmission (MB) to seek a view from Ofgem and the Department of

Energy (DESNZ) if Deblending and CCGT compatibility is in the scope of this Request.
Update: Carried Forward

0801: *Reference IEA/CSEP/NExA to UNC Interactions* – National Gas Transmission (MB) to consider aspects/interactions with the Offtake Arrangements Document (OAD) and Independent Gas Transporter Arrangements Document (IGTAD).
Update: Carried Forward

0802: *Reference HyDeploy Report* – National Gas Transmission (MB) to double-check with the GDNs whether the report is available to publish and/or share with Review Workgroup parties.
Update: Carried Forward

0804: *Reference Existing Trading Regime and potential gas blending variability* – National Gas Transmission (MB) and CNG Services (NK) to discuss the various gas variability options and how these would potentially impact the current trading regime
Update: Carried Forward

0805: *Reference Hydrogen Blending (Trading)* – National Gas Transmission (MB) to seek a view from National Gas Transmission Control Centre personnel as to whether they believe that the SO would want to know that they are buying H₂.
Update: Carried Forward

0806: *Reference Hydrogen Blending / Commingling Models* – National Gas Transmission (MB) to provide examples of various commingling models and also confirm what NGT requirements might be.
Update: Carried Forward

Review of National Gas Transmission Action Tracking List (please refer to the *Issues and Actions Tracker* published here: <https://www.gasgovernance.co.uk/0849/041023> for details, with only Review group commentary on the Tracker recorded in these minutes)

2. Final Considerations

MB clarified the Next Steps for this Review Group advising that it is scheduled to report to the Panel on 18 January 2024 and there is a final review group to run on 09 January 2024, to review the final list of issues and outline any next steps.

MB then provided an update to the following areas, please refer to the published presentation here: <https://www.gasgovernance.co.uk/0849/04102> for detailed information.

MB clarified that the plan for the Review Group is to complete the interim report for the Panel in January 2024 and pause the review groups until conclusions on physical processes to be implemented have been completed. A set of final review groups will be arranged to review new business rules for pre-modification.

MB provided an update on Assumptions and Parameters; this can be reviewed on slides 4 and 5 of the presentation published.

Connections and Capacity Allocation – Slides 8 & 9

MB updated the Workgroup on some of the approaches that are being considered and outlined the differences between Distribution and Transmission.

When NK suggested that DN Entry Capacity and Firm Capacity on Distribution Networks should be referred to as physical capability, MB agreed and confirmed she would change the wording. NK further explained that Distribution does not have a commercial capacity product.

MB provided an overview, and the advantages and disadvantages of Capacity Allocation using an Optimised or a Minimal Change approach:

Optimised Approach:

Could support optimisation of blend volumes into the network	Increase in resource time and cost to develop/ implement (GDN- Do not currently have an entry capacity product).
Help to coordinate and manage blend cap between IGTs, DNOs, Transmission and Interconnectors.	Could act as a barrier for producers located far from optimal connection points.

JCx referred to the Postage Stamp model introduced as part of [Modification 0678B - Amendments to Gas Transmission Charging Regime](#) and said it would be a big piece of work to move away from that.

Minimal change

Quicker to implement with lower costs and less complexity	No guarantee that the producer would be able to blend hydrogen, as would depend on prevailing conditions upstream.
	Could limit blend volume potential due to sterilisation of parts of the network.

Discussion:

JCx raised a concern that this approach feels quite challenging and suggested the Review Group should consider something smaller and more realistic and suggested starting with something simple and narrow, advising that she is concerned about a connection potentially being refused because it is upstream of an existing one and added this might be a contravention of the Gas Act.

Agreeing with JCx, ASH suggested that cost is also a consideration and, because it is both difficult to manage and expensive to manage, logic needs to be applied for when the decisions are made to expand the hydrogen blend percentage.

When MB asked if there needs to be some protection for the producers connecting in case the connection is refused, JCx noted that if a producer has gone to the cost of building a connection, it should be assumed they would like to be able to connect.

VR advised that, in the consultation from a government point of view, they do not want to limit where connections can occur.

ASH noted it does not seem logical to align by producers, having a ‘first come first served’ approach needs a better definition.

RHe asked whether the free market competition aspect was referring to the competition between hydrogen producers or between any or all of those who wish to connect gas flows onto the network. Is the aim to provide due discrimination in favour of hydrogen producers?

It was noted that biomethane uses a lower calorific value type delivery, the more you put in the less hydrogen comes out, which means there may be competition for the same space/capacity.

BW explained there are different scenarios depending on the dynamics of the LDZ system. Bringing biomethane into the system brings down the flow weighted average, which means you can then get more hydrogen in.

Hydrogen Blending: Connections

MB noted that the Gas Act 1986: Section 9 states “*Obligation to offer connections if it is economical to do so and avoid any undue preference or discrimination*” which does not provide flexibility. There may be a requirement for an auction if the capacity/capability is a scarce

resource.

NK advised that DNs have an auction for interruption which sits outside of the Code and is an established process.

MB said, taking on board all comments. this topic does need further development and advised that KPMG will consider this as part of one of their Workshops and assess which option is most realistic.

It was commented that it is difficult when there is uncertainty of how many connections there will be or how much hydrogen there will be available to blend.

The nub of the issue is how to treat a newcomer compared with those who are already connected, who has rights to do what, given limited capability.

NK provided the following link to the DN interruption reform and Shipper participation letter addressed to Gas Shippers in September 2008: <https://www.ofgem.gov.uk/publications/dn-interruption-reform...>

The Review Group participants considered auctioning and referred to RGTA discussions held in 1998/99 which concluded the only solution was to use an auction to correctly apportion capacity. Reference was also made to the PARCA Window Application that is used.

The Calorific Value Challenge

MB noted that to reach a 20% blend across the networks, the billing methodology may need to be looked at.

Real-Time Settlement Methodology

Johana Duran Santos (JDS) from SGN joined the call and presented the Real-Time Settlement Methodology study, which can be found on slides 16-22, noting two Future Billing Methodology solutions should be considered:

- Online CV Modelling
- Embedded Zone Charging.

JDS explained that the proposal is to develop and demonstrate an integrated and flexible solution that enables the characterisation, settlement, and billing process of multivariable calorific values across the LDZ and the whole network. JDS confirmed SGN are considering a session in January or February 2024 with Suppliers and Shippers.

When Anne Jackson (AJ) asked how representative the sample of customers with the whole of the UK was for the methodology, JDS advised the methodology needs whole industry input to generate a solution for the whole of the UK.

More information will be available in the New Year with the launch of the new website in January 2024.

JCx asked how the modelling extends to domestic sites that might have predictable demand in terms of weather conditions and how movement in modelling analysis be managed. JDS advised that a Modelling system is being created, and that weather is not included in the scope for this trial.

For more information, please see the published presentation.

3. Pre-Modification Review

Not discussed in this meeting.

4. Workgroup Report Completion

The Chair confirmed the Interim Workgroup Report will be completed at the next meeting on 09 January 2024.

5. Next Steps

Workgroup 6 will take a view to making final considerations and complete the Interim Workgroup Report.

The Joint Office will request a Workgroup extension to September 2024.

6. Any Other Business

No other business was raised.

7. Diary Planning

Further details of planned meetings are available at: www.gasgovernance.co.uk/events-calendar/month

Time / Date	Paper Publication Deadline	Venue	Workgroup Programme
10:00 Tuesday 09 January 2024	17:00 29 December 2023	Microsoft Teams	Workgroup Report Completion

0849R Action Table

Action Ref	Meeting Date	Minute Ref	Action	Reporting Month	Owner	Status Update
0701	18/07/23	1.3	<i>Action 2 – GCOTER: Guv Dosanjh (GD) to provide a link to the report that is looking at gas temperature on the HyDeploy project.</i>	Sept 2023	Guv Dosanjh (GD)	Carried Forward
0703	18/07/23	3.0	National Gas Transmission (MB) to seek a view from Ofgem and the Department of Energy (DESNZ) if Deblending and CCGT compatibility is in the scope of this Request.	Sept 2023	National Gas Transmission (MB)	Carried Forward
0801	02/08/23	1.3	<i>Reference IEA/CSEP/NExA to UNC Interactions – National Gas Transmission (MB) to consider aspects/interactions with the Offtake Arrangements Document (OAD) and Independent Gas Transporter Arrangements Document (IGTAD).</i>	Sept 2023	National Gas Transmission (MB)	Carried Forward
0802	02/08/23	2.	<i>Reference HyDeploy Report – National Gas Transmission (MB) to double-check with the GDNs whether the report is available to publish and/or share with Review Workgroup parties.</i>	Sept 2023	National Gas Transmission (MB)	Carried Forward
0804	02/08/23	3.	<i>Reference Existing Trading Regime and potential gas blending variability – National Gas Transmission (MB) and CNG Services (NK) to discuss the various gas</i>	Sept 2023	National Gas Transmission (MB) & CNG	Pending

			variability options and how these would potentially impact the current trading regime		Services (NK)	
0805	02/08/23	3.	<i>Reference Hydrogen Blending (Trading)</i> – National Gas Transmission (MB) to seek a view from National Gas Transmission Control Centre personnel as to whether they believe that the SO would want to know that they are buying H ₂ .	Sept 2023	National Gas Transmission (MB)	Pending
0806	02/08/23	3.	<i>Reference Hydrogen Blending / Commingling Models</i> – National Gas Transmission (MB) to provide examples of various commingling models and also confirm what NGT requirements might be.	Sept 2023	National Gas Transmission (MB)	Pending
1101	22/11/23		5a) GCoTER – National Gas Transmission (MB) to confirm if the global warming effects have been taken into consideration	January 2024	National Gas Transmission (MB)	Pending
1102	22/11/23		Joint Office (RHa) to update the Workgroup Report ready for publication for the Next Meeting on 09 January 2024	January 2024	Joint Office (RHa)	Pending