# UNC Modification 799 - UNC arrangements for the H100 Fife project (100% hydrogen).

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UNC Work group meeting

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# UNC Modification 799 - Workgoup #1

- Project overview introduction – H100 Fife project team.
- Background to H100 Fife project and the UNC Modification.
- High level run through of Modification business rules.
- Modification implementation timeline considerations.

# Background to project: Requirement for UNC Modification.

- H100 project – safety, customer, engineering and commercial project goals.
- SGN H100 project – introduction of 100% hydrogen into the Total System under the UNC.
- Requirement to ensure customers maintain switching capability and energy costs remain reflective of natural gas.
- UNC current definition of gas prohibits hydrogen gas.
- Previous hydrogen trial projects have not recognised the hydrogen energy in the Total System / UNC.
- H100 project specific rules in UNC required to facilitate Xoserve customer billing solution.

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# Background to project: Requirement for UNC Modification.

- Create transitional set of H100 rules specific to H100 mprns which are time bound based on the projected timeline of the H100 project.
- Where H100 transitional rules do not apply existing UNC arrangements prevail.
- Introduce Hydrogen as a ‘gas’ in defined terms for H100 mprns only and included within the transitional rules.
- Enable proposed Xoserve change solution for energy allocation and facilitation of customer billing through business rules.
- UNC MOD progressing  in parallel with Xoserve change proposal XRN5298.

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# Over view of business rules in Modification.

1. Establish a transitional set of rules (the H100FIFE Project Rules) which will be ringfenced to H100 LDZ Supply Meter Points and the H100 LDZ System Entry Point. The rules should apply from 01/01/23 until 31/03/27.

2. All obligations and provisions detailed in the UNC will apply equally to H100FIFE project LDZ System Entry Point and LDZ Supply Meter Points, Users and Transporters unless specified in the rules set out in the H100FIFE Project Rules.

3. Amend the definition of gas for the purposes of the H100FIFE project LDZ System Entry Point and LDZ Supply Meter Points to mean a gas consisting of predominantly hydrogen.

4. LDZ Supply Meter Points which are connected to the H100FIFE project network and are being supplied with hydrogen gas will be defined as H100FIFESGN using the pre-existing Network Indicator field in CDSP central systems. Any LDZ Supply Point (at the point in time when the LDZ Supply Point is converted from natural gas to hydrogen gas) whose LDZ Supply Meter Point Reference Number is already established shall retain this LDZ Supply Meter Point Reference Number for the duration of the H100FIFE Project trial period.

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# Over view of business rules in Modification.

5. The relevant Transporter will publish on a secure platform and keep up to date a document accessible by relevant industry parties detailing all LDZ Supply Meter Points which are connected to the H100FIFE project network and the date on which hydrogen gas was first supplied to the LDZ Supply Point, this date being the start of the gas day on which hydrogen was first supplied to the relevant LDZ Supply Point and a date (where applicable) on which hydrogen gas was last supplied to the LDZ Supply Point. The document will also detail for the purposes of TPD Section J 2.4.3 a change in the characteristics of the gas made available at the relevant H100FIFE project LDZ Supply Meter Point for offtake (the change in characteristics being that of hydrogen gas rather than natural gas).
6. The Metered Volume as defined in TPD M 1.5.3 (d) will be amended to include a further adjustment (in addition to the correction for temperature and pressure) to reflect the conversion of the hydrogen recorded volume to that of an equivalent natural gas volume by means of a Multiplication Factor applied to the calculated Metered Volume. The Multiplication Factor will be used to calculate a natural gas equivalent Metered Volume for the purposes of calculating a Metered Quantity using a natural gas calorific value. The Multiplication Factor will be set to reflect the Declared CV for the duration of the H100FIFE project trial period.

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# Over view of business rules in Modification.

7. Exclude H100 Supply points from UNC TPD Section H 1.6 NDM Sample requirements. Meter readings from H100FIFE project LDZ Supply Meter Points will reflect larger hydrogen gas consumption volumes and as such will not be reflective of natural gas consumption. It would therefore not be appropriate to use H100FIFE project LDZ Supply Meter Point's daily offtake of gas for the purposes of the development of End User Categories and Demand Models.

8. The Standard Offtake Requirements as defined in TPD J 2.1.2 refer to requirements of gas composition and pressure referenced in Section 16(1) of the Act (The Gas Act 1986 as amended in The Gas Act 1995). The Act points to The Gas Safety (Management) Regulations 1996 Part 8 (Schedule 3) which details the content and other characteristics of gas. It is anticipated that the H100FIFE project case for safety (reviewed by the HSE) will provide an alternative to the requirements detailed in Part 8 of the Gas Safety (Management) Regulations 1996 relating specifically to Schedule 3 applicable to the hydrogen content of gas (currently <=0.1% (molar)). Therefore, Standard Offtake Requirements applicable to the H100FIFE project will be required to reference this case for safety and for the purposes of transparency the Transporter will make the hydrogen gas characteristics available to the industry (included in the industry document referenced in business rule #5).

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# Over view of business rules in Modification.

9. The Transporter will take account of any available data or relevant leakage information pertaining to the H100FIFE project network which may impact upon the Assessed LDZ Shrinkage in relation to the requirements detailed in UNC TPD Section N 3.3 for the relevant LDZ (for the H100FIFE project this will be the Scotland LDZ).
10. The storage associated with the H100FIFE project is part of the Connected Delivery Facility and is upstream of the LDZ System Entry Point and as such UNC TPD Section R is not relevant to the H100FIFE project.
11. For the purposes of the Regulations (The Gas (Calculation of Thermal Energy) Regulations 1996) (as amended 1997) the calculation of thermal energy for H100 LDZ Supply Meter Points will be declared pursuant to Regulation 7, 8, 9 and 10 (Part III). The H100 LDZ System Entry Point and H100 LDZ Supply Meter Points will be registered as being part of the Scotland LDZ (LDZ SC) in CDSP central systems as the creation of a new LDZ is currently deemed not cost efficient, however a distinction will be drawn to recognise that the calculation of thermal energy is carried out pursuant to Regulation 7 and therefore is a separate charging area for the purposes of the Regulations. To ensure accurate customer billing and Shipper energy allocations Business Rule # 6 will apply to H100 LDZ Supply Point Metered Volumes and Metered Quantities. Therefore, for the purposes of the H100FIFE project, UNC OAD Section F 1.2 (a), (b) and (c) will reflect that there will be established a H100FIFE project Charging Area pursuant to Regulations 7, 8, 9 and 10 and that the Scotland LDZ will also represent the H100 Charging Area.

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# Over view of business rules in Modification.

12. H100 LDZ Supply Meter Points will attract the same gas Transportation charges as detailed in UNC TPD Section Y and reflected in the published Scotland Gas Networks transportation charging statement.
13. The H100FIFE project Transporter will ensure there is an agreement in place with a gas producer to meet security of supply requirements as detailed in the case for safety as agreed with the HSE. As such the Transition Rules for the H100FIFE project should include H100 LDZ Supply Meter Points in the scope of TPD Section Q 1.9.1 (dis-application of TPD Section Q).
14. [The Transporter will provide meter asset details and a start read for the hydrogen Supply Meter Point to Xoserve].
15. The H100 hydrogen production facility will be defined as a Connected Delivery Facility as referenced in UNC TPD Section I 1.2.2.
16. The H100 Connected Delivery Facility is a LDZ System Entry Point and as such is a (Individual and not an Aggregate) System Entry Point which will facilitate delivery of gas to the Total System by a Delivering User.
17. The H100 hydrogen production facility operator will be SGN Futures H100 Limited and who will be defined as a Delivery Facility Operator (DFO) – in line with UNC TPD I 1.2.3.
18. A LDZ System Network Entry Agreement will be in place between the Transporter (Scotland Gas Networks) and the DFO (SGN Futures H100 Limited) in line with I 1.3 which will include Gas Entry Conditions (in line with I 2.4), Measurement Provisions (I 2.5) and Local Operating Procedures (I 2.6).

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# Modification implementation considerations.

- Modification 0799 contains suggested implementation timeline: -

1. The relevant Ofgem H100Fife specific project conditions are satisfied.

Of the six project conditions linked to the H100 Fife project as per Ofgem's Project Direction, 4 have been satisfied, some with ongoing obligations and the remaining two are open as the deadlines for these have not passed. Overall good progress is being made on the project conditions. The project direction can be found online here.

**Condition 1 – Partner Agreements:** Initial stage gate satisfied, secondary stage gate on track to have appliance manufacturer agreements in place by October 2022.

**Condition 2 – Value for Money:** Satisfied. Ongoing obligation to ensure cost efficiency.

**Condition 3 – Evidence of a Satisfactory Regulatory Model:** Satisfied. Ongoing discussions with Ofgem for SGN to provide evidence to resolve regulatory issues and agree regulatory model for April 2022 checkpoint.

**Condition 4 – Security of Hydrogen Supply:** Satisfied.

**Condition 5 – Safety:** Upcoming deadline for April 2022. Ofgem require an update from the HSE on SGN engagement as part of the project to ensure there are no showstoppers to the cases for safety workstream so far. This will be an informal progress update and a letter of assistance from the HSE would only be supplied once all evidenced is assessed. The timeline for this is estimated to be Q4 2022.

**Condition 6** – **Minimum Household Engagement:** Ongoing obligation to maintain a minimum of 270 customers connected to the hydrogen network during project operations starting in 2023.

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# Modification implementation considerations.

- Modification 0799 contains suggested implementation timeline: -

2. The H100Fife regulatory model is agreed with Ofgem.

Linked to Condition 3.

Ofgem was satisfied with our work to date to develop the regulatory model for the project as per Condition 3 requirements that were met in March 2021. This workstream has bene further developed over the last year and we are now in discussions with Ofgem to understand what further evidence is required to reach agreement on the project's regulatory model. We aim to provide this evidence base in April 2022.

3. The HSE provide no objection to the H100Fife cases for safety.

Linked to Condition 5.
We are engaging regularly with the HSE to align with our cases for safety workstream which is underway with contractors DNV. This alignment means we are able to share information and outputs with the HSE as they are developed to ensure the HSE has full visibility across this workstream. This will allow the HSE to provide an informal progress update to Ofgem in April 2022 to ensure there are no showstoppers recognised with our approach at that point in time. The project will proceed into the operational stage providing there is no objection from the HSE. Should there be no objection, a letter of assistance is expected from the HSE at the end of 2022 to validate this prior to going live in 2023.

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# Modification implementation considerations.

- Modification 0799 contains suggested implementation timeline: -

4. The relevant Xoserve system requirements detailed in XRN5298 are implemented.

**XRN5298 - H100 Fife Project - Phase 1 (Initial Assessment)**

This change to support the Project was raised with Xoserve in January 2021 to assess and facilitate the implementation of a solution to support SGN's H100 Fife Project.

The current status of the change is in capture/detailed design of the preferred solution option to utilise the Multiplication Factor and has been earmarked for delivery by Xoserve via a Central System Major Release in November 2022. The current planned delivery however is subject to Modification 799 and overall project approval by Ofgem.

# Thank you

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