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| UNC Workgroup Report | At what stage is this document in the process? |
| UNC 0808:  Reverse Compression |  |
| **Purpose of Modification:**  Clarification of the requirements when gas can flow to a Distribution Network (DN) from an Independent Gas Transporter (IGT) as well as from a DN to an IGT, such as through reverse compression with zero net flow into or out of the DN. | |
| **Next Steps:**  The Workgroup recommends that this Modification should be subject to Self-Governance  The Panel will consider this Workgroup Report on 20 April 2023. The Panel will consider the recommendations and determine the appropriate next steps. | |
| **Impacted Parties:**  High: Some Distributed Gas Producers, Compression service developers.  Low: Distribution Network Operators (DNOs)  None: Gas Shippers and Suppliers, CDSP and Consumers | |
| **Impacted Codes:**  None | |

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| Contents  1 Summary 3  2 Governance 3  3 Why Change? 4  4 Code Specific Matters 4  5 Solution 4  6 Impacts & Other Considerations 5  7 Relevant Objectives 8  8 Implementation 10  9 Legal Text 10  10 Recommendations 10  Timetable   |  |  | | --- | --- | | **Modification timetable:** | | | Pre-Modification Discussed | 28 April 2022 | | Date Modification Raised | 09 May 2022 | | New Modification to be considered by Panel | 19 May 2022 | | First Workgroup Meeting | 26 May 2022 | | Workgroup Report to be presented to Panel | 19 January 2023 | | Draft Modification Report issued for consultation | 20 January 2023 | | Consultation Close-out for representations | 10 February 2023 | | Final Modification Report available for Panel | 15 February 2023 | | Modification Panel decision | 16 March 2023 | | **Any questions?** |
| Contact:  **Joint Office of Gas Transporters** |
| **Description: Description: email_us_go_online** [**enquiries@gasgovernance.co.uk**](mailto:enquiries@gasgovernance.co.uk) |
| **Description: Description: call_us0121 288 2107** |
| Proposer:  **Tim Davis**  **Barrow Shipping Ltd** |
| **Description: Description: email_us_go_online** [**tdavis@barrowshipping.co.uk**](mailto:tdavis@barrowshipping.co.uk) |
| **Description: Description: call_us 07768 456 604** |
| Transporter:  **David Mitchell, SGN** |
| **Description: Description: email_us_go_online** [**david.mitchell@sgn.co.uk**](mailto:david.mitchell@sgn.co.uk) |
| **Description: Description: call_us 07799 343 082** |
| Systems Provider:  **Xoserve** |
| **Description: Description: email_us_go_online** [**UKLink@xoserve.com**](mailto:UKLink@xoserve.com) |

Summary

#### What

#### The Code is silent on embedded “Reverse Compression”. This Modification was initially proposed to allow private sector investment in reverse compression to be treated in the same way as network investment, for example with no entry or exit charges applicable. Legal advice is that a Gas Transporter (GT) licence would be required for any pipeline system that supports reverse compression. This Modification now seeks to introduce the requirements that would apply in cases where gas can flow from an IGT to a DN.

#### Why

#### Compressors can be used to move gas from a lower to higher pressure tier pipeline. This can relieve capacity constraints for distributed entry. This can only be effective if the relevant DNO supports the process and manages its DN to accommodate the changed flows. It is proposed that this and any specific requirements the DNO has of the iGT be captured in an operating agreement. UNC Modification is proposed to require the iGT and DNO to enter into an operating agreement.

#### How

UNC amendment to recognise that gas can flow from an iGT to a DN and, when proposed, require an iGT and DNO to enter into an operating agreement in order to support this.

Governance

#### Justification for Self-Governance

#### Reverse compression will only be successful if supported by the relevant DNO and so cooperation is essential. This is an enabling Modification that would require development of the operating parameters, but the actual operation would not be impacted. As it is a clarifying and enabling Modification, implementation is unlikely to have a material impact on any party and Self-Governance is appropriate.

#### Panel determined the Modification is unlikely to have a material effect.

#### Modification 0808 will therefore follow Self-Governance procedures.

#### Requested Next Steps

This Modification should:

* be considered a non-material change and subject to Self-Governance.
* proceed to Consultation.

Why Change?

The injection of distributed gas is growing. As at the end of March 2022, 126 DN entry points were registered on Gemini.

Barrow Green Gas (BGG) understands that around 15 existing biomethane projects flare gas from time to time because of DN capacity constraints. BGG has seen an estimate that suggests around half of the currently identified potential new biomethane sites face local grid capacity constraints and, as a result, are unlikely to be developed. This may be exacerbated by high gas prices that can be expected to reduce gas demand, with a consequence being additional flaring of biomethane due to the capacity reduction (biomethane plants cannot be instantaneously turned off and the ability to flare gas is a safety measure to ensure pressure can be relieved).

Constraints typically arise in the summer months when demand is low. However, it is possible to export gas from one pipeline pressure tier (e.g. Medium Pressure) to a higher one (e.g. Intermediate Pressure). This increases the ability of a DN to accept gas, with higher pressure tiers able to more easily accommodate additional gas as it provides access to more widespread sources of demand.

The ability of Reverse Compression to increase the capacity available to accommodate distributed gas is established in Europe, for example with over 30 projects in France. Cadent are completing the first such project in GB at a site near Doncaster, funded by Ofgem NIC. All the DNOs are proposing to offer reverse compression within their networks as an option, with discussions underway in an entry connections forum. Distributed gas producers, however, are interested in arranging this for themselves, and a number of such projects are being actively pursued.

This Modification was initially brought forward to ensure a level playing field such that private sector investment in reverse compression could compete with DNO investment. However, legal advice from the DNOs is that any pipeline installed to deliver reverse compression would have to be subject to a GT licence. The UNC is silent on the concept of an iGT that supports gas being injected to as well as receiving it from a DN, and does not envisage reverse compression via an iGT system. This Modification is, therefore, proposed to address this and provide clarity about the requirements when gas can flow from an iGT to a DN.

Code Specific Matters

#### Reference Documents

UNC/IGTAD

#### Knowledge/Skills

Understanding of connected system rules and distributed gas entry requirements.

Solution

Any proposal to connect a new iGT network to a GT network would be subject to the standard requirements as specified in Licence Condition 4B statements produced by each GT. If the DNOs conclude that it is desirable to change these statements in light of gas being able to flow from an iGT to the DN, they will bring forward and consult on the changes they propose. Regarding this Modification, it is proposed that the Code be modified to require that an iGT and DNO enter into an operating agreement when an iGT Connected System supports gas flowing in to a DNO. The Code should specify that the agreement should include, inter alia, details of arrangements concerning:

Communications between iGT and DN operators

Site management

Site operation

Exit and entry rates (Scm/h).

Impacts & Other Considerations

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

There are no SCRs live as at February 2023v so there is no impact.

#### Consumer Impacts

**Proposer’s view:**

Reduced biomethane flaring is positive through environmental benefits. Increasing biomethane supply theoretically lowers consumer prices (higher supply and unchanged demand puts downward pressure on prices), but the limited scale means any impact would be minimal.

**26 January 2023 Workgroup views**

Workgroup Participants noted that biomethane is generally considered positive for its progress towards Net Zero. This Modification is aiming to facilitate more biomethane onto the grid and therefore it appears that the Modification supports progress to Net Zero.

#### What is the current consumer experience and what would the new consumer experience be?

No Change.

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| Impact of the change on Consumer Benefit Areas: | |
| Area | Identified impact |
| Improved safety and reliability  No Change | None |
| Lower bills than would otherwise be the case  Theoretical benefit but too small to be realised in practice  Workgroup Participants agreed. | None  (Workgroup view was that this is minimal or neutral impact) |
| Reduced environmental damage  The potential for reducing biomethane flaring has clear environmental benefits. Reverse compression will also facilitate additional distributed entry that would otherwise not be developed due to DN capacity constraints.  Workgroup Participants believed that the flaring was unlikely to occur. Facilitating additional capacity is the main driver for this Modification. | Positive |
| Improved quality of service  No Change | None |
| Benefits for society as a whole  Small employment opportunities would be created through the development and installation of compressors facilitating investment in more Anaerobic Digestion plants producing biomethane. | Positive |

#### Cross-Code Impacts

There may be an impact on the IGT-UNC.

*February 2023 - Does Workgroup agree with the Proposer?*

#### EU Code Impacts

None.

Workgroup agreed.

#### Central Systems Impacts

No Impact.

**Rough Order of Magnitude (ROM) Assessment**

None required.

**Performance Assurance Considerations**

Workgroup believed there was no impact on Performance Assurance aspects.

#### Panel Questions

1. Consequential impact on upstream metering

Workgroup clarified that there is an impact on upstream metering of increased biomethane injection but not directly as a result of this Modification. The upstream metering impact is a separate issue which will be addressed outside this Modification.

1. Clarification of who would operate the installation and thus whether it is part of "the network"

Workgroup has so far discussed whether the installation could be;

* + Built and owned by the relevant GDN.
  + A self-lay option (to be built by the developer) if a specification can be agreed that can be purchased. The relevant Network would then adopt (and operate) the installation.
  + The Modification approach where the installation would be owned and operated by the IGT (acting for the local Anaerobic Digestion developer).

**26 January 2023**

The Workgroup concluded that all three options are viable. If the first two options are not possible for whatever reason, the third option can be developed and this Modification facilitates this third option.

1. What are the charging implications?

A Workgroup Participant identified that a Modification may be required in order to suspend certain charges in respect of reverse compression exit/entry charges.

This Modification specified in the Business Rules that there will be no Transportation charges. There may be charges association with Section 4B.

Charging Relevant Objectives have been filled in since there are likely to be changes in Legal Text for Section Y the Modification.

#### Workgroup Impact Assessment

Workgroup Participants have discussed the Modification at the following meetings:

* [Workgroup 0808 23 February 2023](https://www.gasgovernance.co.uk/0808/230223)
* [Workgroup 0808 26 January 2023](https://www.gasgovernance.co.uk/0808/260123)
* [Workgroup 0808 12 December 2022](https://www.gasgovernance.co.uk/0808/121222)
* [Workgroup 0808 24 November 2022](https://www.gasgovernance.co.uk/0808/241122)
* [Workgroup 0808 27 October 2022](https://www.gasgovernance.co.uk/0808/271022)
* [Workgroup 0808 25 August 2022](https://www.gasgovernance.co.uk/0808/250822)
* [Workgroup 0808 28 July 2022](https://www.gasgovernance.co.uk/0808/280722)
* [Workgroup 0808 23 June 2022](https://www.gasgovernance.co.uk/0808/230622)
* [Workgroup 0808 26 May 2022](https://www.gasgovernance.co.uk/0808/260522)

Discussions have covered the following topics to date:

1. Whether the “special” points where gas will exit at low pressure for reverse compression and entering at higher pressure again need a new definition?
2. Who will own/operate the reverse compression facility (RCF)?
3. How to prevent other connections to the RCF?
4. Responsibility for the gas during reverse compression – licence requirements/title and risk?
5. Would RCF operator need to be an IGT?
6. How will Code obligations be managed by the RCF owner/ operators? How much will need to be disapplied?
7. Metering requirements/ CV monitoring
8. Bi-lateral agreement document– requirements, topics and scope
   * Communications between 3rd party & GDN
   * Site management/non-operational windows
   * Gas quality and operating rules
   * Site operation – manual/auto?
   * ROV requirement?
   * Asset responsibility (ownership and operational responsibility)
   * Exit and entry rates (Scm/h)
   * End of life decommissioning responsibilities
   * Impact of conversion of network to hydrogen.
9. Requirement for more detail in the Solution section and an amended Modification (clear solution; business rules; some for avoidance of doubt statement(s) e.g. regarding bi-lateral agreements).
10. Legal Text production not yet possible, answering queries from legal perspectives
11. Requirement for a pre-agreement to enable feasibility/network analysis/lifetime estimate etc.

**Workgroup views on Governance route**

* Authority Direction has been agreed by Workgroup.

**Workgroup interim conclusions (25 August 2022)**

The Workgroup has continued to consider whether the issue may be dealt with through direct agreements between network operators and thus not require a Code Modification. The proposer of the Modification has progressed with the option to obtain an IGT Licence that would facilitate such arrangements.

The Proposer has argued that it will be preferable to have a generic form of arrangement rather than several bilaterally negotiated agreements. The Proposer noted that the specification for compression currently being suggested by networks is not realistically available for installation.

One Workgroup Participant has identified that even if direct arrangements can be agreed (between networks) there may still be a need for a change to Code in order to suspend certain Transportation charges.

The Proposer has agreed to continue in discussions with network operators to determine whether this Modification Proposal is needed. The Workgroup agreed to consider the feedback from these meetings at its next meeting in September 2022 and in the interim to seek from the Modification Panel permission to extend the duration of the Workgroup for two months.

The nominated provider of legal text (SGN) is awaiting confirmation of the requirements.

**Workgroup interim conclusions (27 October 2022)**

Some discussions have taken place between the proposer and Gas Distribution Network operators and the respective positions were considered at the October Workgroup meeting. The discussions have homed in on three potential models for ownership and operation of the ‘reverse compression’ facilities.

Two operators have indicated that they are content to develop the Proposer’s preferred approach and will proceed to develop some business rules for a supporting agreement. Other networks express concerns or have not yet concluded to a preferred view.

It has been determined that a Network Code Modification should be pursued to permit 3rd party operation of facilities because some additional drafting will be required to identify these as a special form of iGT and to set a prohibition on the facility being used to supply any other customer and that it cannot otherwise operate as a bypass of the GDN system.

The Proposer agreed to prepare an amended Modification for consideration at the November meeting.

Whilst Workgroup Participants recognised there is a strong desire from potential biomethane producers to have greater certainty on the arrangements for their connection to the System, the Workgroup cannot conclude until the outstanding questions are resolved and the GDN position is cleared. The Workgroup commended the Proposer and GDNs to resolve their discussions in the interim agreed to seek from the Modification Panel permission to extend the duration of the Workgroup for a further two months.

**Workgroup interim conclusions (26 January 2023)**

The Proposer clarified that the solution has been updated to make it clear that any DNO that agrees to do this will put it in their Licence Condition 4B statement.

*Business Rules clarifications:*

* The operator – operator agreement is provided to draw people to the process this Modification aims to undertake. The previous terminology “Network Exit and Re-entry Agreement” is not helpful and will be removed.
* It was confirmed there will be several changes required to the Independent Gas Transporter Arrangements Document (IGTAD) which will be detailed in the Legal Text as the IGTAD assumes one directional flow, and it now needs to assume a bidirectional flow of gas.
* It was further clarified that IGTAD assumes that all flows are covered by Transportation Charges, therefore, the disapplication of Transportation Charges needs to be included.
* An amended Modification v3.0 is expected to be discussed at the February 2023 Workgroup.

**Workgroup interim conclusions (23 February 2023)**

Bob Fletcher to add any highlights and check Panel questions – see if any updates are possible given changes to the Modification in v3.0

Relevant Objectives

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| Impact of the Modification on the Transporters’ Relevant Objectives: | |
| Relevant Objective | Identified impact |
| a) Efficient and economic operation of the pipe-line system. | None |
| 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. | Positive |
| 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 |

**Proposer’s Views** **on Standard Relevant Objectives**

Relevant Objective b) - Ensuring that an operating agreement is in place between an IGT and DNO will facilitate economic and efficient system operation through clarity and certainty around how the connected systems will be operated.

By facilitating the development of IGT Connected Systems that deliver reverse compression, implementation would increase the likelihood of schemes being implemented that alleviate capacity constraints and allow increased volumes of distributed gas to be injected. This would facilitate:

* Efficient and economic operation of the pipeline system through the existence of reverse compression that may not otherwise be installed, increasing the options available to a network operator.
* Efficient discharge of the licensee's obligations by ensuring a level playing field between DNO and IGT compression and other embedded reinforcement schemes, avoiding any suggestion of undue discrimination.
* Relevant Objective d) - Securing of effective competition between relevant Shippers and between relevant Suppliers by allowing injection of distributed gas that may otherwise be flared or not developed, with increased supply available to the market when it is economic to inject.

#### Workgroup Assessment of Standard Relevant Objectives

Workgroup Participants indicated they agreed with the Proposer in relation to both Relevant Objectives b) and d)

Some Workgroup Participants noted there may be some smaller impacts of the Modification in relation to management of the distribution network pressure to allow for operation of the reverse compression facility. This would potentially be charged for under Section 4b if required

(*February 2023* if any Workgroup has any discussion of 4B charges then expand here?)

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| Impact of the Modification on the Transporters’ Relevant Charging Methodology Objectives: | |
| Relevant Objective | Identified impact |
| a) Save in so far as paragraphs (aa) or (d) apply, that compliance with the charging methodology results in charges which reflect the costs incurred by the licensee in its transportation business; | None |
| aa) That, in so far as prices in respect of transportation arrangements are established by auction, either:   1. no reserve price is applied, or 2. that reserve price is set at a level -   (I) best calculated to promote efficiency and avoid undue preference in the supply of transportation services; and  (II) best calculated to promote competition between gas suppliers and between gas shippers; | None |
| b) That, so far as is consistent with sub-paragraph (a), the charging methodology properly takes account of developments in the transportation business; | None |
| c) That, so far as is consistent with sub-paragraphs (a) and (b), compliance with the charging methodology facilitates effective competition between gas shippers and between gas suppliers; and | Positive |
| d) That the charging methodology reflects any alternative arrangements put in place in accordance with a determination made by the Secretary of State under paragraph 2A(a) of Standard Special Condition A27 (Disposal of Assets). | None |
| e) 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 |

**Proposer’s Views** **on Charging Relevant Objectives**

Charging Relevant Objective c) -

Compliance with the charging methodology facilitates effective competition between gas shippers and between gas suppliers by allowing injection of distributed gas that may otherwise be flared or not developed, with increased supply available to the market when it is economic to inject.

DNOs are likely to change their Licence Condition 4B Connection Charging Methodology Statements but this is unlikely to impact upon the relevant objectives.

**Workgroup Assessment of ChargingRelevant Objectives**

*February 2023 - Does Workgroup agree with the Proposer?*

Implementation

No Implementation costs are envisaged as a result of this Modification.

Implementation should be as soon as practicably possible following Authority Direction.

Legal Text

Legal Text will be provided by SGN and will be published alongside this report.

#### Workgroup Assessment

*Workgroup’s Assessment of the proposed changes and how these meet the intent of the Solution.*

~~The Workgroup has considered the Legal Text and is satisfied that it meets the intent of the Solution.~~ (NOT YET DONE)

#### Text Commentary

Insert text here.

#### Text

Insert text here.

Recommendations

#### Workgroup’s Recommendation to Panel

~~The Workgroup asks Panel to agree that this Modification should proceed to consultation.~~ (NOT YET READY)