

Mod 0808 Reverse Compression Draft Strawman for consideration.

Background:

UNC Modification 808 was raised by Barrow Shipping Ltd to introduce the concept of reverse compression into the UNC on Gas Distribution Networks (GDN). Reverse compression is required in certain circumstances to facilitate additional entry capacity on a GDN network to allow a delivery facility (typically a biomethane production facility) to enter gas on to the GDN network at a given volume rate. Reverse compression in simple terms works by exiting gas from a GDN network at a specific location, compressing this gas to achieve a higher gas pressure, and then re-entering the gas onto a higher-pressure tier GDN network. The reverse compression asset may be in close geographic proximity to the biomethane production facility or many miles from it depending on the configuration of the GDNs' networks.

Under current industry arrangements, any party exiting gas from a GDN network is required to be a licensed gas shipper and is exposed to network transportation charges and associated obligations including metering and energy balancing. Similarly, any party entering gas on to a GDN network is required to comply with the relevant obligations in Section "I" (not limited to) of the UNC in relation to general network entry conditions specified in a network entry agreement. The underlying principle of the UNC modification is to facilitate reverse compression without the requirement to incur network transportation charges and to reduce the obligations associated with re-entering the gas on to the GDN network.

During UNC workgroup discussions the GDNs expressed a view that the transfer of risk and title to the gas as it passes from the GDN network to the reverse compression asset operator and back to the GDN needed to be addressed. It was considered that one solution to this issue was for the reverse compression asset operator to hold an iGT license. This in turn would bind them to the provisions of the relevant network code including legal responsibility for title and risk to the gas at the point the gas transferred from the GDN to the iGT.

The GDNs also expressed a view that there would be a requirement for an enduring agreement which would be defined in the UNC between the GDN and the iGT covering the operation of the reverse compression asset setting out each parties' baseline obligations including any decommissioning requirements associated with the asset.

In parallel with this agreement there would be an additional requirement to enter into a connection agreement with the GDN which would cover the activities leading up to the initial connection. This would be set out in the relevant GDN's connection 4B statement and would include any charges associated with the GDN facilitating the connection. This would also include the arrangements to ensure any interaction between future entry connections and the reverse compression asset was analysed and taken into consideration when agreeing any agreement.

Therefore, two stages have been identified:

1. Pre-connection activities covered under a network connection agreement including a requirement for a chargeable capacity study to establish whether (a) the proposed location of the reverse compression asset is suitable and (b) whether alternate options are viable/more suitable for the project.

2. Enduring arrangements between the iGT and the GDN covering the operation of the reverse compression asset. This would be a UNC referenced agreement setting out baseline requirements for this agreement.

An enduring requirement for the GDN to consider the operation of the reverse compression asset in relation to the strategic development of the network including any new (additional) interacting entry connections.

**Stage 1 – Pre connection activities (established in the GDN 4B Connection’s statement): -**

1. The GDN would undertake a chargeable capacity study to consider the following areas prior to entering into a network connection agreement.
2. The iGT would provide a provisional reverse compression asset location and exit / entry capacity requirement and the GDN would undertake a capacity study to determine the feasibility of specified asset location as well as considering any future network development / mains replacement program that may be undertaken in the location – GDN Network Planning analysis review.
3. Network will consider the longevity of asset location in terms of continued economic and efficient management of the network to sustain iGT asset.
4. Enter into a network connection agreement covering the following areas :-
5. Agreed reverse compression design by the GDN in relation to the physical connection of the asset onto the GDN network. This would require the acceptance by the GDN of a IGEM GL5 design requirement setting out how the asset would operate and be controlled.
6. Gas quality – agreement would need to cover any mandatory requirements (if any) in relation to gas quality monitoring and rules around operation of the asset. Possible G8 risk workshop.
7. The GDN may require the installation of a ROV to control gas flow off/on to the network.
8. Exit and volume entry rates (Scm/h).
9. HSE

**Stage 2 – Enduring arrangements agreement (established in the UNC via the iGT Arrangements Document) :-**

1. Asset responsibility – delineated lines of ownership and operational responsibility.
2. End of life decommissioning responsibilities + impact of conversion of network to hydrogen etc.
3. Agreed communications between the iGT & GDN – planned exit and entry flows from and onto the network on an enduring basis and how this would work in terms of communication channels.
4. Site management – the agreement would need to cover non-operational windows when the GDN required the reverse compression asset exit/entry volume to be reduced or turned off for network maintenance activities.
5. UNC IGTAD requirements: -
6. Under the Modification Proposal gas will leave the GDN network into an iGT network therefore this will need to be recognised in the UNC (IGTAD) to allow gas to exit and re-enter the network via the iGT’s pipeline. This will need to be reflected in the modification as this will discharge the title and risk for the gas passing from the GDN to the iGT party and back to the GDN.

7. Lack of metering at exit and entry points could lead to loss of gas scenario (albeit acknowledge we wouldn't expect gas fired compressors to be used....) – there may a loss of gas issue and this would need to be evaluated and included in the iGT shrinkage calculation which flows through to UIG. Establish the concept of an enduring arrangements' agreement in the UNC IGTA.