

UNC Derogation Application	At what stage is this document in the process?
<h1 data-bbox="132 320 770 414">UNC D0XXX:</h1> <h2 data-bbox="132 448 1177 660">Derogation from Relevant UNC Provisions for Reverse Compression to the National Transmission System</h2>	<div data-bbox="1204 315 1474 555"> <div data-bbox="1204 315 1474 389">01 Application</div> <div data-bbox="1204 398 1474 472">02 Draft Derogation Report</div> <div data-bbox="1204 481 1474 555">03 Final Derogation Report</div> </div>
<p><b>Purpose of Derogation Application (Specify associated Use Case):</b></p> <p>The purpose of the Derogation Application is to disapply UNC provisions that are not appropriate for a proposed reverse compression installation that would move gas from a distribution network to the National Transmission System. Reverse compression facilitates deliveries of bio-methane to the GB gas network that (due to capacity constraints in lower pressure tiers) would otherwise not be delivered.</p> <p>Facilitating the delivery of bio-methane to the gas network aligns with UNC Derogation Use Case A. More specifically, reverse compression projects facilitate the uptake of low carbon technologies (part (c)), the purpose of which is to facilitate net zero and the achievement of a 100% reduction in greenhouse gas emissions in the UK by 2050.</p>	
<p><b>Next Steps:</b></p> <p>The Proposer recommends that this Application should be:</p> <ul style="list-style-type: none"> <li>treated as a Derogation Application and should proceed as such under a timetable agreed with the Authority</li> </ul> <p>This Derogation Application will be presented by the Proposer to the Panel on 19 October 2023. The Panel will consider the Proposer's recommendation and determine the appropriate route.</p> <p><i>Please consider providing a presentation to introduce the Application to the UNC Modification Panel which should be sent with your Application to the Joint Office (a suggested template is available at: <a href="https://www.gasgovernance.co.uk/unc/templates">https://www.gasgovernance.co.uk/unc/templates</a>)</i></p>	

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<b>Summary of Derogation</b>	<b>3</b>	UNC Party name and Address: <b>National Gas Transmission</b>
<b>Reason for Application</b>	<b>4</b>	<b>National Grid House, Warwick Technology Park,</b>
<b>Conditions</b>	<b>7</b>	<b>Gallows Hill, Warwick, CV34 6DA</b>
<b>Timescale</b>	<b>8</b>	Company Registered Number: <b>02006000</b>
<b>Associated Derogations or similar</b>	<b>8</b>	Company UK Link Short Code: <b>TRA</b>
<b>Effect on Other Parties</b>	<b>8</b>	Insert Name & Position: <b>Phil Lucas</b> <b>Senior Codes Change Lead</b>
<b>Safety Case</b>	<b>10</b>	Telephone: <b>07825 592518</b>
<b>Derogation Footnote</b>	<b>10</b>	Email: <b>phil.lucas@nationalgas.com</b>
<b>Supporting Documentation</b>	<b>11</b>	Date of Application: <b>3<sup>rd</sup> November 2023</b>
		Applicant Reference: <b>DER001</b>
		E-signature (Company Secretary/ Authorised Person): <i>Chris Logue</i> <b>Head of Markets</b>

## Timetable

### Derogation Application timetable:

Derogation Application Discussed	07 Sep 2023
Date Derogation Application Raised	03 Nov 2023
Initial Panel Consideration	16 Nov 2023
Derogation Report issued for consultation	16 Nov 2023
Consultation Close-out for representations	07 Dec 2023
Final Derogation Report available for Panel	08 Dec 2023
Modification Panel decision	21 Dec 2023
Ofgem Decision	21 Jan 2023
Derogation Implementation Date	01 Apr 2025
Derogation Expiry / Backstop Date	31 Mar 2028

Derogation Part of a Suite: Standalone/  
Lead/ Associated:  
(delete as appropriate)  
**Standalone**

### Guidance on the use of this Template:

Please complete all sections unless specifically marked for the Code Administrator.

Please refer to the **Derogations Guidance Document** when completing this template: <https://www.gasgovernance.co.uk/derogation-process>

The Code Administrator is available to help and support the drafting of any Applications, including guidance on completion of this template and the process.

Contact: [enquiries@gasgovernance.co.uk](mailto:enquiries@gasgovernance.co.uk) or 0121 288 2107

## 1 Summary of Derogation

*Please provide details of the specific obligation(s) to which you are seeking a derogation quoting relevant UNC paragraphs:*

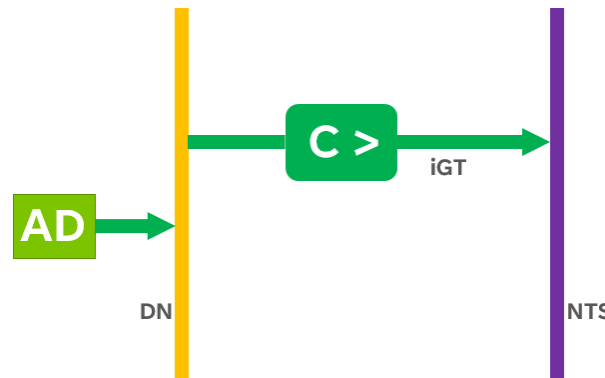
*Please refer to section 6 & 7 of the Derogations Guidance Document*

There is potential for significant growth in green gas production across GB e.g. biomethane and Hydrogen, especially as a result of Government time-limited industry support schemes, e.g. Green Gas Support Scheme. However, an inability to access network capacity in Gas Distribution Networks (DNs) is a key constraint. CNG Services has approached National Gas Transmission (NGT) regarding the use of reverse compression to resolve this limitation in Cambridgeshire by moving gas from the Distribution Network to the National Transmission System. By moving gas from lower to higher pressure tiers, reverse compression can make capacity available at times of low demand in the lower pressure network. The use of such is widespread and demonstrably successful elsewhere in Europe.

UNC Modification Proposal 0808 addresses 'within-DN' Reverse Compression where an iGT installs a compressor, typically from Medium Pressure (MP) / Intermediate Pressure (IP) to Local Transmission System.

However, opportunities have been identified for Reverse Compression from a DN to the National Transmission System (NTS), e.g. where the proximity of DN and NTS Pipelines would make this the most economic solution.

The physical setup proposed by CNG Services is represented below. In this pictorial, the bio-methane plant (AD) delivers gas to the DN. At times of low demand when the DN would otherwise be unable to accept continued deliveries (e.g. warm summer nights), the iGT would offtake gas from the DN in order to enable the continued acceptance of the bio-methane by the DN whilst maintaining safe pressure levels. The gas offtaken by the iGT would be compressed and the odorant removed such as to make the gas acceptable for delivery into the NTS. Bio-methane acceptance by the DN would therefore be uninterrupted at times of low demand.



This Derogation is sought in respect of a reverse compression project in the Cambridge area with the potential to unlock around £150m of investment from five biomethane production plants. The Derogation is sought from the following provisions of the UNC for a period of three (3) years:

UNC Section	Title	Purpose
TPD Section A1.4	System Points	Physical connections to the National Transmission System (NTS) and the relevant Local Distribution Zone (LDZ) will not constitute a <b>System Point</b> or an <b>Individual System Point</b>
TPD Section A1.6	NTS and LDZ System Points	Physical connection to the LDZ will not constitute an <b>LDZ System Point</b> . Physical connection to the NTS will not constitute an <b>NTS System Point</b> .
TPD Section A2	System Entry Points	Physical connection to the NTS will not constitute a <b>System Entry Point</b> or an <b>Aggregate System Entry Point</b>
TPD Section A3	Exit Points	Physical connection to the LDZ will not constitute a <b>Connected System Exit Point</b> .

## 2 Reason for Application

*Please provide details of the justification for seeking this derogation (including any alternative actions that have been considered, and reason that these are not being pursued):*

*Please refer to section 6 & 7 of the Derogations Guidance Document*

### **Existing UNC Framework**

The UNC currently defines the Total System<sup>1</sup> as comprising the NTS and the Local Distribution Zones (LDZs), hence excluding iGT networks. This means that in respect of the proposed reverse compression to the NTS from an iGT network;

- gas offtaken by the iGT from the LDZ (within the DN) would be exiting the Total System; and
- gas delivered by the iGT to the NTS would be entering the Total System.

Hence under the prevailing terms of the UNC:

- the point of offtake from the DN would be treated as a new Connected System Exit Point (CSEP)<sup>2</sup>;
- the point of delivery to the NTS would be treated as a new Aggregate System Entry Point (ASEP)<sup>3</sup>; and
- the provisions of TPD Section J (Exit Requirements) and I (Entry Requirements) would apply at the CSEP and ASEP (respectively).

### **Rationale for Proposed Derogation**

Five potential AD plants are known to be looking to inject gas into the DN in Cambridgeshire area but are unable to achieve financial close without reverse compression into the NTS since limited network capacity is available. A key part of creating sufficient capacity in this area for the projects to proceed would be reverse compression from DN to NTS, with four locations identified where the LTS and NTS cross each other and could be connected via iGT owned pipework in and out of a reverse compression facility. For these four locations no pipelines would be required as the LTS and NTS would both be on the site of the reverse compressor and odorant removal plant. This would deliver confidence about capacity availability to the five identified projects and enable them to go ahead, potentially unlocking around £150m of investment in the immediate future. Additional projects may also be developed that could benefit from the availability of capacity in the area which at present does not exist.

With reverse compression from a DN to the NTS via an iGT, the volumes of energy offtaken from, and delivered to, the Total System (as defined in the UNC) will be equal and thereby will not have been offtaken for the purposes of consumption, nor delivered to the Total System as 'new' gas. On this basis, the gas transported/compressed by the iGT can be considered simply as a flow within the 'combined systems' (i.e. the Total System as described in the UNC and the relevant iGT pipeline) with no net delivery to, nor offtake from, those combined systems.

Acceptance of this principle would negate the UNC implications of the offtake from the DN and subsequent delivery to the NTS being treated as a CSEP and an ASEP (respectively), and hence Shipper Users would not be required to offtake and deliver gas at these points. The existing UNC obligations could be applied such that an ASEP would be created and the entry of gas would be double counted and be sold twice. Since there would be no supply points on the CSEP, there would be no offsetting gas exit under the existing UNC terms. Disapplication of certain provisions of the UNC, which is the purpose of this UNC Derogation Application, is required to avoid this outcome, which is clearly unsatisfactory.

In parallel with this Derogation, NGT anticipate raising a Request that will support a review to identify how the UNC should be modified to account for the potential impact of more varied gas flow patterns in future. This

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<sup>1</sup> TPD Section A1.1.1

<sup>2</sup> TPD Section A3.3

<sup>3</sup> TPD Section A2.3

would include reverse compression installations such as that envisaged for the Cambridge area, with an iGT facilitating flow between a DN and the NTS, but also reverse flow through either existing or new DN/NTS Offtakes with no iGT involvement. Given that this review will take time to complete and that developers need certainty now in order to commit to investment, a Derogation is being sought. Time is especially critical since Government support schemes for new biomethane plants are only available until 2025. A three year Derogation has been requested in the expectation that the derogation will not be needed once the outcome of the wider review has been implemented.

### **Materiality of Gas Flowing via the RCI**

From a CNG Services perspective, the energy quantities expected to be subject to reverse compression in the Cambridge area are expected to be relatively low over the course of the requested Derogation, but the anticipated investments will deliver much larger volumes to the distribution network. The availability of reverse compression will provide the necessary certainty and confidence about the availability of network capacity to support investment going ahead.

<b>Period</b>	<b>Forecast RC hourly flow rate</b>	<b>Forecast RC Frequency (Hours of Operation)</b>	<b>Forecast Aggregate Energy (kWh) per annum via RC</b>
1 <sup>st</sup> Apr 2025 – 31 <sup>st</sup> Mar 2026	5000 scmh	500	5 – 10 million
1 <sup>st</sup> Apr 2026 – 31 <sup>st</sup> Mar 2027	5000 scmh	1000	10 – 20 million
1 <sup>st</sup> Apr 2027 – 31 <sup>st</sup> Mar 2028	5000 scmh	1500	20 – 30 million

Note – the hours of operation figures are indicative at this stage. It is envisaged that the reverse compressor would initially operate for a few hours on summer days/evenings and when industry is not taking gas. If more projects go ahead in this area, then the load factor would increase.

The compressor would have a flow-rate of 5,000 scmh for the number of hours specified. Initially only one compressor may be required, with a second to provide more resilience as more projects are developed in the area and the running hours increase.

The annual kWh flowing from LTS to NTS is indicative of around 5 - 10% of the biomethane injection.

### **Benefits**

Enabling the delivery of bio-methane to the DN by utilisation of reverse compression to the NTS aligns with UNC Derogation Use Case A. More specifically, Reverse Compression projects facilitate the uptake of low carbon technologies, the purpose of which is to facilitate net zero and the achievement of a 100% reduction in greenhouse gas emissions in the UK by 2050.

From a CNG Services perspective, the installation of operational RCI is expected to enable the following:

- possibility for **existing bio-methane producers** in the area to increase production by an estimated 50 – 100 million kWh/annum
- for **prospective bio-methane connections** (which require certainty regarding year-round deliverability of bio-methane to the DN in order to secure the required funding), delivery of bio-

methane to the DN estimated at 200 – 300 million kWh/annum from five projects constituting around £150m of investment.

It should be noted that a number of the prospective projects will also require within DN reverse compression as they are located on 2 bar and 7 bar grids. The within DN reverse compression projects could be delivered by the DNO or an IGT and would deliver gas into the LTS which would then utilise the reverse compression into the NTS.

### **Alternatives Solutions Considered**

The following alternative solutions have been considered:

- **Operate RCI Under Existing UNC Framework**

As set out above, we believe this would necessitate treatment of the two points of connection as a CSEP and an ASEP with the associated requirements for Shippers Users to arrange for conveyance of gas at those points with the relevant Transporters. Given the equality between energy offtaken and delivered to the Total System at RCI, applying such terms appears unnecessary, overly burdensome (given the forecast volumes) and inappropriate given that the implication of double counting gas entering the network.

- **Operate RCI Under a Modified UNC Framework**

This would necessitate the raising of a UNC Modification Proposal to implement transitional and/or enduring arrangements. However, the timescales inherent within the UNC governance process for development of a comprehensive solution, and lack of certainty as to the commercial operating arrangements, would not facilitate the making of investment decisions in the short term for the building of AD plants.

The necessity to implement a full UNC solution at this stage for the operation of the Cambridge area project is open to question and arguably unnecessary given the forecast energy involved over the period for which the derogation is sought.

### **Conclusion**

In conclusion, we are of the opinion that the proportionate and optimal approach is for a UNC Derogation to apply over the initial period of operation as described in this UNC Derogation Application to facilitate the Cambridgeshire projects and, separately, a UNC Request initiated to consider the enduring UNC arrangements that should apply in respect of reverse compression.

For the avoidance of doubt, the bio-methane connection/s to the LDZ are out of scope of these arrangements and are subject to the prevailing UNC rules for LDZ System Entry Points. The scope of this Derogation Application and the suggested UNC Request described above is limited to the reverse compression installation itself as described in section 3 'Conditions'.

## **3 Conditions**

*Please provide a description of the conditions of this derogation (i.e. location, or other restrictions):*

*Please refer to section 6 of the Derogations Guidance Document*



If approved, this UNC Derogation would apply in respect of the Reverse Compression facilities located within the county of Cambridgeshire to support capacity availability in Cambridgeshire, the sole purpose of which is to enable continued deliveries of bio-methane to the DN at proximate LDZ System Entry Points (i.e. creation of physical capability in the DN to accept delivery of bio-methane in periods of low DN demand in that area).

## 4 Timescale

*Please advise the period of time for which the derogation is sought (including start and end dates):*

*Please refer to section 6 of the Derogations Guidance Document*

The UNC Derogation is sought for a period of three (3) years from commencement. The rationale for this is that it enables investment to be undertaken with confidence while allowing time for the UNC to be reviewed and modified. Enduring UNC provisions applicable to reverse compression to the NTS are expected to be in place by the proposed expiry of the Derogation. However, if such enduring provisions are implemented prior to the 'Ending On' date set out below, we would expect this Derogation to end at that point (i.e. the Derogation and enduring provisions would not be effective, nor operate, concurrently).

**Commencing On:** 1<sup>st</sup> April 2025

**Ending On:** 31<sup>st</sup> March 2028

**Backstop Date:** Not applicable

*Should your derogation not include a fixed end date, please provide a backstop date.*

## 5 Associated Derogations or similar

*Please provide details of any previous or current derogations or permissions (for example licence, other codes or standards) which are related to this application.*

*Please refer to section 7 of the Derogations Guidance Document*

None identified to date [however discussions are due to take place within the iGT Workgroup to determine whether any Derogation is required from relevant provisions of the iGT UNC in order to facilitate reverse compression on an iGT network. If this is required this will need to be progressed by a party to the iGT UNC.]

## 6 Effect on Other Parties

*Please provide details of the requested Derogation's anticipated impact on the costs and operations on other parties:*

*Please refer to section 6, 7 & 8 of the Derogations Guidance Document*



Impact of the change on Consumer Benefit Areas:	
Area	Identified impact
<p><b>Improved safety and reliability</b></p> <p>Facilitating acceptance of additional bio-methane to the GB gas networks will improve the reliability of gas supplies in GB (i.e. reduce reliance on gas from other sources, or indeed supplement other sources)</p>	Positive
<p><b>Lower bills than would otherwise be the case</b></p> <p>The availability of increased volumes of bio-methane could reduce reliance on other sources of gas that may prove more expensive to procure due to nature of the product (e.g. LNG) and/or be subject to price drivers inherent in world markets.</p>	Positive
<p><b>Reduced environmental damage</b></p> <p>The availability of increased volumes of bio-methane ('renewable natural gas') reduces reliance on traditional 'fossil fuel' sources of gas.</p>	Positive
<p><b>Improved quality of service</b></p> <p>Not applicable</p>	None
<p><b>Benefits for society as a whole</b></p> <p>The availability of increased volumes of bio-methane ('renewable natural gas') reduces reliance on other traditional 'fossil fuel' sources of gas.</p>	Positive

## Cross-Code Impacts

No cross code impacts are anticipated as a result of this derogation to date. Impacts on the iGT UNC from UNC modifications relating to biomethane injection (0808 and 0842) have been considered and all impacts will be addressed through this route.

## Central Data Systems Provider Impacts

If this UNC Derogation Application is approved the physical connections to the LDZ and NTS would not constitute Entry or Exit Points under the UNC and thus no commercial flows (User Daily Quantity Output / User Daily Quantity Input) would exist at those points which would otherwise be recorded in central systems.

*[Initial discussions with the CDSP have commenced and a ROM raised in order to identify any other impacts on systems and process operated by it. Any impacts identified that require changes to such systems and or processes will be assessed via the normal change process to identify solution options and associated costs. The ROM response is expected ahead of formal submission of this Derogation Application hence this section will be supplemented with relevant information from this response]*

## Details of Any Reporting Required

It is proposed that the following information will be made available if this UNC Derogation Application is approved:

- metered energy measurements for each Gas Day when the reverse compression installation in Cambridgeshire is active.

## 7 Safety Case

*Before a derogation application can be submitted to Panel it must include evidence that all necessary interactions with HSE have taken place and been satisfactorily concluded.*

*Please refer to section 7 of the Derogations Guidance Document*

There will be no novel arrangement for NGT as a result of this Derogation, with the Cambridge area project leading to the familiar scenario of gas entering the NTS from time to time. As such, NGT does not believe any change to its Safety Case is needed as a result of this Derogation. Similarly, there would be no new issues that may impact a DN Safety Case.

The iGT will need to consider its own Safety Case and any implications from the proposed arrangement. HSE is aware of similar compressors that operate to inject gas from AD plants into high pressure pipelines, and no new concerns nor issues are anticipated. The removal of odorant from the DN gas is straightforward and already takes place in Denmark with five very large 20 – 70 bar reverse compressors.

We note the requirement in the Derogations Guidance Document that “*all necessary interactions with the HSE have taken place and been concluded*”.

At this stage, the Derogation Application is being sought to support the business case for securing the investment necessary to build Reverse Compression Installations hence it is not possible for **all** HSE discussions to have been concluded (i.e. all those required ahead of commissioning/first gas flow). Specifically, the Reverse Compression facility will require a Safety Case and as such, only when the HSE approves that (expected around summer 2024) will all discussions with HSE ahead of commissioning/first gas flow be concluded.

In the absence of an approved Safety Case the plant cannot run and there would be no gas flows out of the DN and into the NTS. Ultimately regardless of any commercial framework approvals, the HSE will determine if the plant can operate in line with its existing remit and processes. In effect, this Derogation Application provides the commercial opportunity to develop Reverse Compression facilities that if pursued will be required to develop a Safety Case for HSE approval in order to operate. Accordingly the financial risk of the Safety Case not being approved sits with the developer.

On this basis, we believe that all the discussions/interactions with HSE **that are necessary for this Derogation Application to proceed** have been concluded.

## 8 Derogation Footnote

### Sections of UNC that required Footnote added

The following sections of the UNC require noting:

UNC Section	Title	Purpose
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TPD Section A1.4	System Points	Physical connections to the National Transmission System (NTS) and the relevant Local Distribution Zone (LDZ) will not constitute a <b>System Point</b> or an <b>Individual System Point</b>
TPD Section A1.6	NTS and LDZ System Points	Physical connection to the LDZ will not constitute an <b>LDZ System Point</b> .  Physical connection to the NTS will not constitute an <b>NTS System Point</b> .
TPD Section A2	System Entry Points	Physical connection to the NTS will not constitute a <b>System Entry Point</b> or an <b>Aggregate System Entry Point</b>
TPD Section A3	Exit Points	Physical connection to the LDZ will not constitute a <b>Connected System Exit Point</b> .

## 9 Supporting Documentation

*Please clearly reference and list any attached supporting documents:*

*Please refer to section 7 of the Derogations Guidance Document*

See provided PowerPoint.