

National Gas Transmission
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Date: 26 May 2025

Dear National Gas Transmission PLC,

SIF Project Direction

National Gas Transmission PLC submitted FutureGrid: CO2 (the Project) to be considered for funding through the Beta Phase of Round 4 of the Strategic Innovation Fund (SIF). As explained in greater detail below, this Project applied straight to Round 4 Beta of the SIF. In our¹ SIF Funding Decision issued on 26 May 2025, we selected the Project² for conditional funding for the Round 4 Beta Phase and as a result we are now issuing this SIF Project Direction to implement that decision.

National Gas Transmission PLC must comply with the conditions contained in this SIF Project Direction as a condition of the Project receiving funding through the SIF. These conditions can be found in the Schedule to this document.

Progression through SIF Phases

The SIF consists of a multi-phase approach for Projects in order to mitigate the risk associated with innovations. The Discovery Phase focuses on feasibility, the Alpha Phase on experimental development, and the Beta Phase on deployment and demonstration. The Innovation Challenge issued for each Round will state if a Project can apply directly to Alpha or Beta, without the requirement to have progressed through Discovery and Alpha.

¹ The terms 'we', 'us', 'our' refer to the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.

² Unless otherwise specified, defined terms in this SIF Project Direction have the meaning given to them in Appendix 1 of the SIF Governance Document.

The Project submitted an Application direct to Beta for the Project to be considered for SIF Funding through the Round XX Beta Phase of the SIF. As stated above, the Project has been selected to receive SIF Funding for the Round 4 Beta Phase.

Role of UK Research & Innovation (UKRI)

As per Chapter 1 of the SIF Governance Document³ the role of UKRI is to deliver the SIF in line with the SIF Governance Document - administering the funding programme, monitoring the delivery of Projects, collating data from Projects on benefits, making recommendations to Ofgem on operational matters, supporting third-party innovators and, where possible, successful Projects to become 'business as usual' activities. To support the success of the Projects and the SIF programme, we expect that the Funding Party and Project Partners collaborate with Ofgem and UKRI.

SIF Project Direction

Paragraph 5.14 of the SIF Governance Document states that a SIF Project Direction will:

- Set out the Project-specific conditions, to which the Funding Party is committing in accepting SIF Funding.⁴
- Require the Funding Party to undertake the Project in accordance with the commitments made in the Application. Where appropriate, the SIF Project Direction may therefore include extracts from the Application or refer to specific sections of the Application.⁵
- Where applicable, set out conditions (such as Project stage gates) linked to milestones and deliverables, which Projects must meet.⁶
- Set out the SIF Approved Amount for the Project, that will form part of the calculation contained in the SIF Funding Direction issued by the Authority under Chapter 7 of the SIF Governance Document.⁷
- Set out the Project budget that the Funding Party must report against and how variations in the Project budget will be reported.⁸
- Where applicable, set out special information sharing requirements applicable to the Project.⁹

³ <https://www.ofgem.gov.uk/decision/updated-sif-governance-document>

⁴ 'Project specific conditions' detailed under Point 3 – 'Condition President' of this SIF Project Direction.

⁵ As above

⁶ As above

⁷ 'SIF Funding Amount' detailed under Point 5 – 'Condition President' of this SIF Project Direction.

⁸ 'Annex 1 – Project Budget.

⁹ 'Project specific conditions' detailed under Point 3 – 'Condition President' of this SIF Project Direction.

- Set out the mechanism for the Funding Party receiving the SIF Approved Amount as set out in the SIF Funding Direction.¹⁰

All SIF Project Direction requirements are detailed in the Schedule to this SIF Project Direction.

Decision

Provided the Funding Party complies with the SIF Governance Document and with the Schedule to this SIF Project Direction, the Project is deemed to be an Eligible SIF Project¹¹.

This SIF Project Direction constitutes notice pursuant to section 38A (Reasons for decisions) of the Gas Act 1986.

Marzia Zafar

Deputy Director, Decentralisation & Digitalisation

For and on behalf of the Authority

¹⁰ 'SIF Funding Amount' detailed under Point 5 – 'Condition President' of this SIF Project Direction.

¹¹ The meaning 'Eligible SIF Project' is described in Chapter 2 of the SIF Governance Document.

Schedule to SIF Project Direction

1. PROJECT DETAILS

Application number: 10157622

Project title: FutureGrid: CO2

Innovation Challenge/Project Phase: Faster Network Development/ Round 4 Beta Phase

Project start date: 1 September 2025

Project end date: 20 December 2027

SIF Approved Amount for SIF Funding: £3,798,826

2. PREAMBLE

This SIF Project Direction is issued by the Gas and Electricity Markets Authority (the "Authority") to National Gas Transmission PLC (the "Funding Party") pursuant to the SIF Governance Document issued pursuant to Special Condition 5.7 of the Gas Transporter Licence. It sets out the conditions to be complied with in relation to FutureGrid: CO2 (the "Project") as a condition of it being funded under the SIF Funding Mechanism.¹²

Unless otherwise specified, defined terms in this SIF Project Direction have the meaning given to them in the Licence or Appendix 1 of the SIF Governance Document.

References to specific sections of the Funding Party's Application in this SIF Project Direction are, for ease of reference, made by referring to the section number in the Funding Party's Application.

3. PROJECT-SPECIFIC CONDITIONS

In accepting funding for the Project, the Funding Party is subject to the following Project-specific condition(s):

Condition 1

The Funding Party must not spend any SIF Funding until contracts are signed with the Project Partners named in Table 1 for the purpose of completing the Project.

Table 1. Project Partners

National Gas Transmission PLC
GL INDUSTRIAL SERVICES UK LTD

¹² The SIF Funding Return Mechanism is defined in the SIF Governance Document.

NaTran PIPELINE INTEGRITY ENGINEERS LIMITED
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Condition 2 – financial contribution

The Funding Party must report on the financial contributions made to the Project as set out in its Application. Any financial contributions made over and above that stated in its Application should also be reported and included on the Innovation Funding Service (IFS).

Condition 3 – Meeting arrangements

The Funding Party must participate in all meetings related to the Project that they are invited to by Ofgem, UKRI and Department for Energy Security and Net Zero during the Beta Phase.

Condition 4 – Stage gate scoping

The Funding Party must, with support from Innovate UK and, where applicable Ofgem, scope the requirements and success criteria for each stage gate, as set out in the Project management plan within a Project at the quarterly reporting meetings ahead of any stage gate. These will be used to determine what criteria a Project must meet in order to pass a stage gate, and whether any additional information, such as a report, must be produced as part of the stage gate.

Condition 5 – Impact monitoring

As part of the end of Project Phase report, the Funding Party must produce a Project Impact Monitoring and Evaluation Plan. This plan must outline how the Project plans to monitor and evaluate the delivery of benefits outlined in the Beta Phase Application following the end of the Beta Phase. The plan must also include the methodology that will be utilised for quantifying and qualifying benefits realisation and how the Funding Party plans to report this to Ofgem 1, 3, 5 & 10 years post-Beta Phase completion. Further details on how to approach the development of this plan may be provided by Ofgem or Innovate UK.

Condition 6 – SIF Community Forums

The Funding Party and all Project Partners must make reasonable attempts to attend, participate and/or contribute at SIF Community Forum events occurring during the Project delivery. We anticipate there being approximately one event per year.

Condition 7 – Policy, regulatory and standards barriers

The Funding Party must provide verbal updates at each quarterly review meeting on any regulatory, policy and standards barriers and any change requirements which may impact delivery of the Beta Phase activities. The Funding Party must also include as an attachment to each of its annual progress report an update on any regulatory, policy and standards barriers which may require derogations and articulation of any proposed regulatory, policy and standards changes which would be necessary in deployment. The Funding Party must also provide an as an attachment to its end of Project Phase report a summary of the Project's findings on regulatory, policy and standards barriers, including any considerations for future work, and where applicable, where specific regulatory, policy and standards changes would be required for deployment.

Condition 8 – Updated 60-second videos

The Funding Party must provide within the first three months of signing contracts with its Project Partners an updated 60-second video. If the Project is greater than two years (24 months) in length, an updated video must also be provided at the Project's mid-point meeting. All Projects must also provide an updated 60-second video as part of their end of Project phase report. Innovate UK can share its guidance for 60-second videos with the Funding Party, if necessary.

Condition 9 – Post-Beta Phase roadmap

The Funding Party must provide to the monitoring officer within six months of it signing contracts with its Project Partners a roadmap for activities post-Beta Phase. This can build on the Project's Application question (question 11) and must focus on how and when the proposed solution will become business as usual within the network concerned and across the other GB gas or electricity networks.

As part of this, the Funding Party must include consideration for:

- I. any steps the Project will take to ensure its innovation has suitable business as usual adoption;
- II. the Funding Party's strategy for adoption of the innovation or proposed solution, giving consideration to potential investment, ongoing costs and third-party involvement and;
- III. any early indication of interest from other networks in adopting the innovation.

The Funding Party must provide an update on all the above at every second quarterly review meeting (i.e. every six months) and must include a final update of this roadmap as attachment to its end of Project Phase report.

Condition 10 – Commercialisation strategy

The Funding Party must provide at every second quarterly review meeting (i.e. every six months) an update on its commercialisation strategy. This can build on the Project's Application (question 11) and must focus on what considerations has the Project consortium made for the commercialisation of the proposed solution or innovation, and how the Project provides support for non-network Project Partners to move towards commercialisation. As part of this, the Funding Party may wish to include consideration for:

- I. who the primary customer segment is beyond the Funding Party; the customer value proposition;
- II. if identified, the outline of the route to market and potential new partnerships;
- III. any additional Project Partner capital requirements in order to commercialise the innovation and;
- IV. how this product, process or service could be scaled across the GB network and taken to new markets.

The Funding Party must also include a final update of its strategy as an attachment to its end of Project Phase report. Ofgem and/or Innovate UK may issue a template for the final update as part of the end of Project Phase report.

Condition 11

Prior to kick-off meeting, the Funding Party must provide to the Monitoring Officer a detailed breakdown of accurate costs associated with the work being carried out at Spadeadam. The costs should be itemised and linked back to the applicable Work Packages.

Condition 12

The Project must demonstrate meaningful engagement with other carbon capture, utilisation, and storage projects such as those funded by DESNZ, Scottish Government and or other Ofgem mechanisms. Prior to the second Quarterly Review Meeting, the Funding Party must provide to the Monitoring Officer a stakeholder engagement plan which addresses how the Project will engage with Acorn and the Scottish cluster and identify opportunities for collaboration and knowledge sharing. This document should be updated periodically and reviewed, thereafter, at each Quarterly Review Meeting.

Condition 13

Prior to the second Quarterly Review Meeting, the Funding Party must provide to the Monitoring Officer a Knowledge Dissemination plan which includes how findings will be shared with the wider CCUS industry, such as the DESNZ CO₂ Working Group, including where learnings will be shared internationally, what can be learned from international projects, such as the ACTL Alberta project, and where learnings will be incorporated into safety standards. This document should be updated periodically and reviewed, thereafter, at each Quarterly Review Meeting.

Condition 14

The Project must demonstrate how learnings from this Project are being incorporated into the wider safety case for CCUS. The project must regularly report to the Monitoring Officer on how learnings from this Project are being utilised by and shared with the Health and Safety Executive.

4. COMPLIANCE

The Funding Party must comply with Special Condition 5.7 of the Gas Transporter Licence, the SIF Governance Document and with this SIF Project Direction.

5. SIF APPROVED AMOUNT

The SIF Approved amount of £3,798,825 (as detailed under Section 1: Project details of this Project Direction) will be recovered by National Gas from GB customers and transferred to the Funding Party. The Funding Party is responsible for notifying National Gas of the bank account details to which transfers must be made, in addition to completing Annex 2 of this SIF Project Direction. If a Funding Party is required to return funding to National Gas, the reverse applies. The Funding Party must provide bank account details to National Gas within two weeks of accepting this SIF Project Direction.

6. PROJECT BUDGET

The Project Budget is set out in Annex 1 of this SIF Project Direction.

The Funding Party must report on expenditure against each line under the category total in the Project Budget and explain any projected variance against each line as part of its detailed report which will be provided, in accordance with Chapter 7 of the SIF Governance Document. The Funding Party must report variations in the Project budget as outlined in Chapter 6 of the SIF Governance Document.

7. PROJECT IMPLEMENTATION

The Funding Party must undertake the Project in accordance with the commitments it has made in the Application and with the conditions of this SIF Project Direction. These include (but are not limited to) the following:

- (i) complete the Project on or before the Project completion date as detailed under Section 1 of the Schedule of this SIF Project Direction, and
- (ii) disseminate the learning from the Project at least to the level described in Chapter 3 of the SIF Governance Document. Dissemination of learning must be carried out whether the Project was concluded successfully or otherwise.

8. REPORTING

Ofgem and UKRI may issue guidance (and amend it from time to time) about the structure and content of the Project reporting required by Chapter 6 of the SIF Governance Document. The Funding Party must follow this guidance in preparing the reports.

The Funding Party must submit an end of Project Phase report to UKRI monitoring officers for the Beta Phase. Within this report, the Funding Party must submit information related to questions on Project delivery as detailed in Chapter 6, table 6 of the SIF Governance Document. An End of Phase template is available and can be requested from UKRI.

9. MONITORING

The Funding Party must comply with any reasonable request for information by its monitoring officer at UKRI and related deadlines. Ofgem, with the support of UKRI, will together monitor Project delivery, impacts and benefits. Throughout the term of the Project, progress is monitored by UKRI through a monitoring officer. The monitoring officer is the first point of contact for official notifications, queries and correspondence with UKRI and the Authority, unless otherwise required by this SIF Project Direction.

As detailed in Chapter 6 of the SIF Governance Document, meetings with the monitoring officer will take place at regular intervals, as advised by Ofgem or the monitoring officer during the delivery of the Project, and at the end of each Project Phase.

10. EVALUATION

The Funding Party has acknowledged when it submitted its Application for this Project, that reporting information and data gathered during the Project's timescales (as detailed in Section 1 of this SIF Project Direction) will be used to evaluate Project performance. In addition, the Funding Party may be required to provide requested information outside of the Project timescales and, in particular, for the period from the Project end date to the end of the SIF Programme. Further data and reporting information may be requested (frequency and method based on requirement) outside of standard monitoring and reporting requirements as deemed necessary. Further data and information requirements must be complied with by the Funding Party and Project Partners.

11. DATA SHARING

As set out in Chapter 3 of the SIF Governance Document, the Funding Party must follow Data Best Practice Guidance with regard to all data gathered or created in the course of a Project. We expect the Funding Party to document any reasons, such as commercial sensitivities, for desensitising data. As defined by, and in accordance with, Data Best Practice Guidance, Funding Parties must have a data triage process. Where multiple Project Partners are collaborating on a Project, the consortium must adopt a consistent Open Triage Process for the data related to the Project. Ofgem may require that Project information and data is also shared with other specified parties, such as parties working on complementary innovation funding programmes (subject to redaction of sensitive data).

12. CYBER SECURITY

It is the responsibility of the Funding Party and all Project Partners to implement and maintain appropriate security measures to protect personal data in accordance with The GDPR (General Data Protection Regulation)¹³ and DPA (Data Protection Act) 2018¹⁴. Protection of computer systems from unauthorised access or being otherwise damaged or made inaccessible must be in place alongside effective working practices. These must be maintained in line with the Funding Party's IT Management Strategies and policies.

13. PROJECT MILESTONES

The Funding Party must provide an outline in its end of Project Phase meeting with its UKRI monitoring officer that verifies the Project milestones have been achieved or explains why they have not.

¹³ https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en

¹⁴ <https://www.legislation.gov.uk/ukpga/2018/12/contents/enacted>

Project milestones are outlined below in Table 2, based upon details contained within Question 7 in the Funding Party's Application.

Table 2. Project milestone¹⁵

Reference	Project milestone	Deadline	Overall objectives and key tasks	SIF Funding Request
Milestone 1	Project Management	20/12/2027	<ol style="list-style-type: none"> 1. Manage the project 2. Manage Communications (quarterly reporting and meetings with stakeholders) 3. Project Charter 4. Stakeholder register 5. Regular team meetings 6. Stakeholder quarterly meetings 7. Liaising with other FutureGrid projects 8. Updating risk register 9. Updating timelines 10. Financial Milestones 11. Monthly steering group meetings- this will comprise of all the project partners 12. Maintaining a live action log 13. Lessons learnt document <p>National Gas will lead the dissemination of findings to other gas network operators in the UK and Europe, as well as to emitters and storage sites. We will present our findings at appropriate conferences and events.</p>	£919,993

¹⁵ As outlined in in the Application or Project Plan appendix.

Milestone 2	Design	27/03/2026	<ol style="list-style-type: none"> 1. Design tweaking for adaptation for FutureGrid phase 1 loop 2. Detailed design of rupture rig 3. Detailed design of impurities and corrosion rig 4. Design review for venting 	£556,173
Milestone 3	Preconstruction	28/07/2026	<ol style="list-style-type: none"> 1. Place orders for long lead times 2. Assess assets and note down conditions and impurities 3. Purge the flow loop with nitrogen 4. Operating procedure developed 5. Preparing the ground for building works 	£497,368
Milestone 4	Build	28/09/2026	<ol style="list-style-type: none"> 1. Installation of dewpoint sensors on loop 2. Adapt loop for carbon dioxide flow 3. Modify existing rig for rupture rig 4. Install field instruments 5. Install oxygen sensors and cabling for venting tests 6. Install additional pipework for venting tests 7. Fabricate and install pipework for corrosion rig 8. Install impurities sampling instruments 	£479,958
Milestone 5	Commissioning	08/07/2027	<ol style="list-style-type: none"> 1. Commission flow loop for carbon dioxide usage 2. Commission rupture rig for carbon dioxide usage 3. Commission stack for vent tests 4. Commission corrosion and impurities rig 	£253,908
Milestone 6	Testing	28/07/2027	<ol style="list-style-type: none"> 1. Observe Carbon Dioxide flow and behaviour 2. Understand the differences between carbon dioxide and natural gas for noise, vibration 3. Understand the potential leak levels in valves 	£725,220

			<ol style="list-style-type: none"> 4. Understand the dispersion of a carbon dioxide rupture in high wind and low wind scenarios 5. Understand the temperature effects of a carbon dioxide rupture downstream of the pipe 6. Understand the dispersion of venting to validate venting models 7. Understand ground level carbon dioxide levels in venting 8. Understand the upstream temperature effects of a vent 9. Test and understand real time corrosion of current pipeline material with common impurities 10. Test and understand the usability of a flue gas analyser to analyse impurities in a carbon dioxide stream 	
Milestone 7	Decommissioning	28/09/2027	<ol style="list-style-type: none"> 1. Flow loop returned to normal state post CO2 project. 2. Vent stack disconnected and removed from the loop 3. Rupture rig- removal of associated equipment and returned to original state 4. Impurities rig- breakdown and removal of rig 	£95,697
Milestone 8	Interpreting test data	27/08/2027	<ol style="list-style-type: none"> 1. Interpreting the test results from all the testing done 	£64,912
Milestone 9	Reporting	20/12/2027	<ol style="list-style-type: none"> 1. Interpreting the test results from all the testing done 2. Writing a final report that considers all findings 3. Two rounds of comments 4. Peer review of final report 	£205,598

2. USE OF LOGO

The Funding Party and the Project Partners, External Funders and Project Supporters or subcontractors¹⁶ must not use the Innovate UK/UKRI and/or Ofgem logo for purposes associated with the Project in any circumstances.

As an alternative for use of both Ofgem and UKRI logos, all external Project communications must include the following standard form of wording:

- (i) "this project is funded by network users and consumers under the Strategic Innovation Fund, an Ofgem programme managed in partnership with UKRI."

For additional guidance, refer to the communications and media guidelines for competition winners, detailed as part of your delivery pack. These guidelines are designed to help with some suggestions and encourage you to take a proactive approach to communicating about your Project.

3. SHARING OF LESSONS LEARNED

The Funding Party is required to ensure that the sharing of lessons learned and the facilitation of knowledge transfer is conducted as effectively as possible, to ensure that all parties, and therefore all consumers including future consumers, can benefit from Projects.

As outlined in Chapters 3 and 6 of the SIF Governance Document, we require the Funding Party to work collaboratively with other Networks and third-party innovators to disseminate the learnings and data from Projects and ensure that these are publicly available. This includes taking part in annual events.

4. COLLABORATION

The Funding Party must collaborate with third-party innovators as Project Partners, as well as work closely with other parties in the energy supply chain, as set out in Chapter 3 of the SIF Governance Document.

5. AMENDMENT OR REVOCATION

As set out in Chapter 7 of the SIF Governance Document, this SIF Project Direction may be amended or revoked under the following circumstances:

¹⁶ As detailed in the Application.

- (i) if the Funding Party considers that there has been a material change in circumstance that requires a change to the SIF Project Direction, and the Authority agrees; or
- (ii) to reflect amendments made to the Licence.

6. HALTING OF PROJECTS

This SIF Project Direction is subject to the provisions contained in Chapter 7 of the SIF Governance Document relating to the halting of Projects. By extension, this SIF Project Direction is subject to any decision by the Authority to halt the Project to which this SIF Project Direction relates and to any subsequent relevant SIF Funding Direction issued by the Authority pursuant to Special Condition 5.7 of the Gas Transporter Licence.

Further to the requirements in Chapter 7 of the SIF Governance Document, in the event the Authority decides to halt the Project, to which this SIF Project Direction relates, the Authority may issue a statement to the Funding Party clarifying the effect of that halting decision as regards the status and legal force of the conditions contained in this SIF Project Direction.

NOW THEREFORE:

In accordance with the SIF Governance Document issued pursuant to Special Condition 5.7 of the Gas Transporter Licence of the Licence the Authority hereby issues this SIF Project Direction to the Funding Party in relation to the Project.

This constitutes notice of reasons for the Authority's decision pursuant to section 38A (Reasons for decisions) of the Gas Act 1986.

Failure to comply with the conditions of this SIF Project Direction means that Ofgem may treat all or part of the SIF Approved Amount received by the Funding Party as SIF Disallowed Expenditure.

ANNEX 1: PROJECT BUDGET

SIF Project Direction costs	
Cost Category	Total Project costs (£)
Labour	3,176,214
Materials	1,267,214
Subcontracting	60,000
Travel and subsistence	32,480
Other costs	30,000
Total	4,566,081

Project Partner	Total Project costs (£)	Project contribution (£)	Total SIF Funding requested (£)	Project contribution (%)
National Gas Transmission PLC	772,318	400,000	372,318	
GL INDUSTRIAL SERVICES UK LTD	3,672,554	397,255	3,275,299	
NaTran	19,709	0	19,709	
PIPELINE INTEGRITY ENGINEERS LIMITED	101,500	0	101,500	
Total	£4,566,081	£797,255	£3,798,826	17%

ANNEX 2 TO SCHEDULE: TEMPLATE OF BANK ACCOUNT DETAILS TO BE PROVIDED TO EITHER NGT (BOX.GSOSETTLEMENTS@NATIONALGRID.COM) OR NESO (revenue.invoice@nationalgrideso.com)

Company name:

Primary Contact Details (only one contact permitted)

First Name:

Last Name:

Email address:

Mobile phone number:

Work phone number:

Address details

Address name:

Street address:

City:

State / region:

Post code:

PO box: (if applicable)

PO box post code: (if applicable)

Banking details

These should be evidenced in non-editable format. The evidence provided must show company name and bank details and it should be dated within the last 6 months.

Any of the below documents will suffice:

- Bank statement (scanned document)
- Void cheque
- Paying in slip
- Screenshot of online banking (showing a logged in account with bank account and sort code, with browser visible)