

Cadent Gas Limited
Ansty Park, Pilot Way
Coventry, West Midlands
CV7 9JU

Direct Dial: 020 7901 7295

Email: Marzia.Zafar@ofgem.gov.uk

Date: 16 February 2024

Dear Cadent Gas Limited,

SIF Project Direction ref: Cadent/EMStor/SIFEPC/Rd3_Discovery

Cadent Gas Limited submitted Exploring Geological Hydrogen Storage Opportunities for the East Midlands (EMStor) (the Project) to be considered for funding through the Discovery Phase of round 3 of the Strategic Innovation Fund (SIF). In our¹ SIF Funding Decision finalised on 16 February 2024, we selected the Project² for conditional funding for the round 3 Discovery Phase and as a result we are now issuing this SIF Project Direction to implement that decision.

Cadent Gas Limited 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. This Project Direction is for the round 3 Discovery Phase of the SIF.

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

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.

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

recommendations to Ofgem on operational matters, supporting third-party innovators and, where possible, supporting 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 SIF 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
- 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.

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

⁵ 'Project specific conditions' detailed under Point 3 – 'Condition Precedent' of this SIF Project Direction.

⁶ 'Project specific conditions' detailed under Point 3 – 'Condition Precedent' of this SIF Project Direction.

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

⁸ 'Annex 1 – Project Budget.

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

¹⁰ 'SIF Funding Amount' detailed under Point 5 – 'Condition Precedent' of 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

¹¹ 'Eligible SIF Project' is a defined term in the SIF Governance Document. See also, paragraph 5.13 of the SIF Governance Document.

Schedule to SIF Project Direction

1. PROJECT DETAILS

SIF Project Direction reference: Cadent/EMStor/SIFEPC/Rd3_Discovery

Application number: 10105025

Project title: Exploring Geological Hydrogen Storage Opportunities for the East Midlands (EMStor)

Innovation Challenge/Project Phase: Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation / Discovery Phase round 3

Project start date: 01 March 2024

Project end date: 31 May 2024

SIF Approved Amount for SIF Funding: £138,382

2. PREAMBLE

This SIF Project Direction is issued by the Gas and Electricity Markets Authority (the "Authority") to Cadent Gas Limited (the "Funding Party") pursuant to the SIF Governance Document issued pursuant to Special Condition 5.7 of the Gas Transporter licence (the "Licence"). It sets out the conditions to be complied with in relation to Exploring Geological Hydrogen Storage Opportunities for the East Midlands (EMStor) (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 conditions:

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.

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

Table 1. Project Partners

NET ZERO STRATEGY LTD
EDINBURGH INNOVATIONS LIMITED
STAR ENERGY GROUP PLC
BRITISH GEOLOGICAL SURVEY

Condition 2

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 within the Project costs template.

Condition 3

The Funding Party must make reasonable endeavours to participate in all meetings related to the Project that they are invited to by Ofgem, UKRI and DESNZ during the Discovery Phase.

Condition 4

Prior to the completion of the Discovery Phase the Funding Party must provide evidence to the Monitoring Officer that it has considered linkages with relevant studies and Projects and understands the duplication risk or knowledge sharing opportunity of the scope of this Project.

Condition 5

As part of the Discovery Phase Final Deliverable, the Funding Party must provide evidence to the Monitoring Officer of discussions to address any concerns or considerations related to the regulatory landscape associated with hydrogen storage assets.

4. COMPLIANCE

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

5. SIF APPROVED AMOUNT

The SIF Approved amount of £138,382 (as detailed under Section 1: Project details of this Project Direction) will be recovered by National Gas Transmission from GB customers and transferred to the Funding Party. The Funding Party is responsible for

notifying National Gas Transmission 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 Transmission, the reverse applies. The Funding Party must provide bank account details to National Gas Transmission 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) To undertake the Project in accordance with its Application,
- (ii) To complete the Project on or before the Project completion date as detailed under Section 1 of the Schedule to this SIF Project Direction, and
- (iii) To 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.

As set out in chapter 6 of the SIF Governance Document, the Funding Party may be required to submit an end of Phase report to the UKRI monitoring officer for the round 3 Discovery Phase. An end of Phase report is required for the round 3 Discovery Phase if the Project is not planning on submitting an Application to the round 3 Alpha Phase and,

if the Funding Party submits an Application for the Project for the round 3 Alpha Phase but is not successful. 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.

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 the Schedule to 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 regards 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 Data Triage 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 General Data Protection Regulation¹³ and 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.

Project milestones are outlined below in Table 3, based upon details contained within Question 7 and Appendix Question 9 in the Funding Party's Application.

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>

Table 3. Project milestone¹⁵

Reference	Project milestone	Deadline	Overall objectives and key tasks	SIF Funding Request
Milestone 1	Work package 1: Project Management and Reporting	31 May 2024	<p>Overall objective: To ensure smooth running of project, to manage project meetings, to ensure finances are up to date and to coordinate deliverables.</p> <p>Key tasks:</p> <ol style="list-style-type: none"> 1. Kick off meeting; Weekly project meetings (remote) with all project contributors and risk review 2. Risk Register review 3. Monthly progress reviews 4. Reporting and Deliverables Management 5. Financial review 	£10,000
Milestone 2	Work package 2: Hydrogen storage technology evaluation	31 May 2024	<p>Overall objective: Undertake an evaluation of the different hydrogen storage technologies within the Midlands . This will include line pack, lined rock caverns, salt caverns, depleted hydrocarbon fields (onshore and offshore) and saline aquifers. The evaluation will consider location, capacity, injectivity,</p>	£79,982

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

			<p>deliverability and provision of system flexibility, suitability to the geology of the Midlands, technical feasibility, costs, sustainability, safety, and regulatory challenges.</p> <p>Key tasks:</p> <ol style="list-style-type: none"> 1. Geological evaluation of lined rock caverns in the midlands (GIS layer + data) 2. Evaluation of proximal salt cavern locations (GIS layer + data) 3. Mapping of proximal onshore depleted hydrocarbon reservoirs (GIS layer + data) 4. Mapping of proximal offshore depleted gas fields (GIS layer + data) 5. Mapping of potential saline aquifers (GIS layer + data) 6. Summary of the different storage technologies (e.g. capacity, injectivity, deliverability and provision of system flexibility, suitability to the geology of the Midlands, technical feasibility, costs, sustainability, safety, and regulatory challenges) (report) 	
Milestone 3	Work package 3: Hydrogen demand in the Midlands	31 May 2024	Overall objective: Map the hydrogen production and demand in the East Midlands, South Yorkshire and South Humber regions according to most recent pipeline, producer and customer phasing projections. This will be followed by the creation of	£12,000

			<p>storage scenarios for the East Midlands; working with the local hydrogen producers we'll analyse potential quantities of hydrogen needed to be stored across the region and how they are expected to vary over time.</p> <p>Key tasks:</p> <ol style="list-style-type: none"> 1. Identification of hydrogen production and demand locations/capacities based on latest plans, including sub-regional phasing for Cadent Pipelines 2. Estimate required hydrogen storage quantities and their variation over time, working with local hydrogen producers 3. Star Energy will gather and submit information on all of the oil fields they have within the wider region, according to a list of characteristics and requirements from Edinburgh University 	
Milestone 4	Work package 4: Storage integration analysis in the Midlands region	31 May 2024	<p>Overall objective: Use the GIS map of storage locations to evaluate proximity to existing and projected hydrogen production and demand centres. This will be used to identify the logistical and infrastructural requirements for system integration.</p> <p>Key tasks:</p>	£18,400

			<ol style="list-style-type: none"> 1. System mapping of storage locations/capacities, demand centres and infrastructure 2. Review of logistical and infrastructural requirements for system integration 	
Milestone 5	Work package 5: The way forward and dissemination	31 May 2024	<p>Overall objective: Using the data from previous WPs, a stakeholder workshop will determine a shortlist of storage options for the Midlands based on their TRL, financial feasibility and storage capacity/flexibility to produce a storage development roadmap for the Beta phase proposal. Strategic discussions with the stakeholders to drive forward a pilot hydrogen storage site as well as pre-testing the not yet published new UK Governmental hydrogen storage business model using all project outcomes will be an essential task of this WP. An extensive dissemination plan will be created and delivered, including an in-person launch. Target audience will be local networks, investors, producers, storage providers, developers, hydrogen customers, Government, local authority and political stakeholders.</p> <p>Key tasks:</p> <ol style="list-style-type: none"> 1. Stakeholder workshop to determine a shortlist of storage options for the Midlands 2. Final report of planning for Alpha and Beta phase 	£18,000

			<ol style="list-style-type: none">3. Final event to disseminate findings to stakeholders4. Creation and delivery of wider dissemination through East Midlands Hydrogen partnership (website, public webinar, social media, consortium Deep Dive)	
--	--	--	---	--

14. USE OF LOGO

The Funding Party, Project Partners, External Funders and Project Supporters including any of their 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.

15. 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 contained within Chapter 3 of the SIF Governance Document, we require the Funding Party to work collaboratively to maintain the ENA Smarter Networks Portal so that all reporting and dissemination of learnings on Projects (as required by chapter 6 of the SIF Governance Document) is available via the ENA Smarter Networks Portal.

16. 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.

The Funding Party must collaborate with other parties and with UKRI to organise an annual conference in a format appropriate to enabling the building of consortiums and the dissemination of learning widely. The conference may be a single event for gas and electricity, or more than one event, as appropriate.

¹⁶ As detailed in the Application.

17. 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:

- (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.

18. 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 to 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	146,007
Materials	0
Subcontracting	0
Travel and subsistence	3,900
Other costs	4,000
Total	153,907

Project Partner	Total Project costs (£)	Project contribution (£)	Total SIF Funding requested (£)	Project contribution (%)
Cadent Gas limited	24,525	9,525	15,000	38.84
Edinburgh Innovations Limited	49,900	1,500	48,40	3.01
British Geological Survey	49,982	0	49,982	0.00
Net Zero Startegy Ltd	21,500	1,500	20,000	6.98
Star Energy Group PLC	8,000	3,000	5,000	37.50
Total	153,907	15,525	138,382	10.09

ANNEX 2 TO SCHEDULE: TEMPLATE OF BANK ACCOUNT DETAILS TO BE PROVIDED TO EITHER NGT (BOX.GSOSETTLEMENTS@NATIONALGRID.COM) OR NG ESO (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)