

Strategic Innovation Fund (SIF)

Cycle 1 Innovation Challenges – Discovery Phase

Funding Decision and Summary of Recommendations from  
Expert Assessors  
(unsuccessful Projects redacted)

Date: 12th December 2024

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## Introduction

Innovation will prepare the regulated energy network companies to deliver Net Zero greenhouse gas emissions at the lowest cost to consumers, while maintaining world-class levels of system reliability and customer service.

The SIF was introduced as a part of the RII0-2 price control by Ofgem, the Office of the Gas and Electricity Markets Authority, to support network innovations that contribute to reaching Net Zero while delivering real benefits to network consumers. The SIF is delivered in partnership with Innovate UK (part of UKRI), which administers the SIF and works to coordinate innovation activities funded by network consumers with other innovation funded programmes.

New Innovation Challenges are launched annually which focus on strategic issues currently facing gas and electricity networks.

The SIF adopts a three Phase Project approach within each Round to mitigate the risk associated with innovation: Discovery Phase, Alpha Phase and Beta Phase. The Discovery Phase focuses on feasibility, the Alpha Phase on experimental development, and the Beta Phase on deployment and demonstration.

As set out in the SIF Governance Document<sup>1</sup>, the SIF is open to the Electricity System Operator, Electricity Transmission and Distribution, Gas Transmission and Distribution licensees.

Starting September 2024, the application and assessment process for SIF changed. Instead of each Phase opening once a year, applicants can now apply for Discovery, Alpha, and Beta funding three times a year.

This provides more opportunities to apply. At the same time, for the Discovery and Alpha Phases, the process of assessment for SIF funding to be awarded has been shortened, and flexible Project start dates have been introduced.

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<sup>1</sup> The SIF Governance Document can be found here: <https://www.ofgem.gov.uk/publications/updated-sif-governance-document>

The new application process has been designed to allow for more flexibility depending on project needs. The application window, or cycle, opens every four months, for around four weeks at a time – opening at the end of January, end of May, and end of September. Applicants will be able to apply into all three Phases of the SIF (Discovery, Alpha, and Beta) during each application cycle, where eligible.

SIF cycles occur three times per year and represent a structured phase within the SIF programme's timeline, enabling the submission of applications tailored to specific challenges and themes

The first cycle under the new process, Cycle 1, began in September 2024.

This report is for the Cycle 1 Discovery Phase Project applications. It sets out the Funding Decisions from Ofgem alongside the recommendations from independent Expert Assessors. Each Project application was scored in accordance with eight Eligibility Criteria in accordance with the relevant Innovation Challenges and the SIF Governance Document.

The Innovation Challenges for this Cycle are as follows.

Round 4<sup>2</sup> of the SIF was launched in March 2024 and focuses on four Innovation Challenges:

1. Faster network development
2. Greater heat flexibility
3. Embedding resilience
4. Accelerating towards Net Zero energy networks

These Innovation Challenges were developed through extensive collaboration and consultation with a wide range of stakeholders and interested bodies, including energy network companies, other innovators and entrepreneurs, government and academia.

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<sup>2</sup> Find more information on the Innovation Challenges launched for Round 4 here: [Strategic Innovation Fund – Round Four Innovation Challenges | Ofgem](#)

In prioritising these challenges, the key underlying principles established are that they should be:

- Strategic - innovations are required to meet national and devolved Net Zero targets effectively.
- Network relevant – they involve innovation needs and solutions that can be taken forward or materially supported by energy networks.
- Timely - the challenge should focus on problem areas where solutions can be scaled up to meet the requisite Net Zero targets and commitments.
- Appropriate in scope - the scope of the Innovation Challenge complements and does not duplicate other UK innovation programmes (including other network innovation funding mechanisms).

# 1 Cycle 1 Summary

Within each of the Innovation Challenges are specific requirements on scope and Project Partner requirements. Projects submitted to the SIF must meet these specific requirements and must follow the SIF Governance Document. For this Discovery Phase, applications were received by 23<sup>rd</sup> October 2024 and, if successful, must start no earlier than 1<sup>st</sup> January 2025. They must last up to 5 months, and must not request funding of more than £150,000, exclusive of VAT.

Applications submitted to the Cycle 1 Discovery Phase by the 23<sup>rd</sup> October 2024 deadline, and which met the Innovation Challenge-specific requirements were assessed by Expert Assessors. The Expert Assessors are independent external appointees whose recommendations inform Ofgem's decision-making on the selection of Projects for SIF Funding. The Expert Assessors have relevant expertise and knowledge on the respective Innovation Challenges and/or the energy sector, including for example policy, regulatory, commercial, financial and technical areas. Consistent with the requirements of the SIF Governance Document, the Expert Assessors have assessed each Application with reference to (a) its compatibility with the Eligibility Criteria in chapter 2, and (b) taking into consideration any additional and relevant information available to the Expert Assessors.

As part of each Application assessment, the Expert Assessors also considered whether Projects should receive all the SIF Funding requested for the Discovery Phase, or no funding at all.

The overall funding recommendation summarised in this report is based upon a balance of considerations taking into account whether a Project has met each of the SIF Eligibility Criteria, suitability of the Project for SIF funding, any Project-specific conditions recommended by Expert Assessors, and wider concerns or opportunities identified by the Expert Assessors. For more information on how Projects are assessed by the Expert Assessors, please see Section 2, Assessment Process, below.

This report is a consolidation of the Applications assessed by the Expert Assessors and sets out recommendations from the Expert Assessors to Ofgem on which Projects have

met the Eligibility Criteria and should be considered for SIF Funding in the Cycle 1 Discovery Phase of the SIF. Ofgem, taking into the account the Expert Assessors' assessment and recommendations, will perform its own internal review of each Project to reach a decision. Ofgem is the sole decision-maker for the SIF.

## 2 Assessment Process

For the Discovery Phase there is a maximum of 5 stages in assessing eligible submitted Applications:

- Initial sift - completed by Innovate UK to confirm whether an Application complies with the Innovation Challenge-specific requirements.
- Expert Assessor evaluation – An Expert Assessor assesses and provides a score for each Application and its accompanying appendices, against the questions stipulated in the SIF Governance. These questions tie directly to the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document. Every Expert Assessor includes their assessment of how and why an Application has met or not met each Eligibility Criterion and overall comments for the Application assessed.
- Expert Assessors’ overall recommendations – As part of their assessment, each Expert Assessor provides an overall recommendation on whether the Project should be considered for SIF Funding in the Discovery Phase. This decision is made based on an assessment of whether the majority of Expert Assessors consider that each of the Eligibility Criteria has been met, and a consideration of any serious risk or opportunity in respect of an Application. A Project will be recommended for SIF Funding if it has a majority of Expert Assessors recommending it (two of the three Expert Assessors who assessed the Application), if no significant risks are identified which could prevent the Project from progressing, and if the majority of Expert Assessors on each Project consider it to have met each of the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document.
- Recommended Project-specific conditions – Should an Expert Assessor identify an area for additional consideration or clarity for a Project recommended for SIF Funding during the Discovery Phase, the Expert Assessor may recommend a Project-specific condition be included. In many cases these have been offered as ways of strengthening the Project outcomes and their inclusion does not necessarily reflect a weakness in the Application. The recommended Project-specific conditions are then considered by Ofgem and finalised with any modifications in the Project Direction for each of the successful Projects.
- Final decision – The consolidated recommendations report is provided to Ofgem for consideration on which of the Projects for which Applications have been made



should be considered for SIF Funding. Having taken into account the Expert Assessors' report, Ofgem decides which Projects should receive SIF Funding and provides brief commentary on its reasoning for each decision.

## 1.1 Meeting the SIF Eligibility Criteria

Projects submitted must meet all the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document in order to be considered for SIF Funding. There are eight Eligibility Criteria which must be evidenced within an Application. The following table outlines how the scored questions tie with the Eligibility Criteria outlined in the SIF Governance Document.

Question number	Application question	Eligibility Criteria (chapter 2 of the SIF Governance Document)
2	Problem statement	Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.
3	Innovation justification	Eligibility Criterion 3: Projects must involve network innovation. Eligibility Criterion 5: Projects must be innovative, novel or risky.
4	Benefits Part 1	Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whoever is paying for the innovation).
5	Benefits Part 2	Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whoever is paying for the innovation).
6	Team and resource	Eligibility Criterion 6: Projects must include participation from a range of stakeholders.
7	Project Plan and milestones	Eligibility Criterion 8: Projects must be well thought through and have a robust

		methodology so that they are capable of progressing in a timely manner.
8	Key outputs and dissemination	Eligibility Criterion 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.
9	Route to market	Eligibility Criterion 4: Projects must not undermine the development of competitive markets.
10	Value for Money	Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

### 3 Faster network development Innovation Challenge: Summary of Projects

This section covers the assessment of Cycle 1 Discovery Phase Applications received into the 'Faster network development' Innovation Challenge.

In order to protect intellectual property rights (IPR), unsuccessful Projects have been redacted from the final published version.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Recommended by Expert Assessors for funding (Yes/No)	Decision by Ofgem for funding (Yes/No)
10142974	R4D FastTrack AI for Connections	Southern Electric Power Distribution	158,926	15,893	143,033	Yes	Yes
10143133	Dynamic, Data Driven Asset Rating (3DAR)	Scottish Hydro Electric Power Distribution	120,391	12,039	108,352	Yes	Yes
	[REDACTED]						
10145555	Design for Live Line Technology Acceleration (DELLTA)	National Grid Electricity Transmission	119,766	11,979	107,787	Yes	Yes

## 4 Faster network development Innovation Challenge: Expert Assessors' recommendations on Projects

### 4.1 Project 10142974 - FastTrack AI for Connections

Submitted Project description
<p>The connection request queue is at least 723GW and growing, driven by low-carbon technologies, renewable energy and new developments. Assessing the overall network impact from this volume of applications is challenging, making it difficult to assess available headroom and future investment needs. FastTrack, an AI solution, aims to simulate the impact of both small and large-scale connection requests using data on network capacity, load, and external factors, to present a "rolled up" view of overall demand. This will provide DNOs with risk-weighted insights to make faster, more informed decisions on future investments, helping network planners prioritise interventions improving delivery times.</p>

Eligibility Criteria met or not met – Expert Assessors' evaluation	
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met

8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met
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**Recommendation to the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

The majority of Expert Assessors agreed that the Project has met the Eligibility Criteria and recommended the Application for funding. However, one Expert Assessor did not recommend the Application for funding as they did not feel the Project met Eligibility Criterion 8.

The Project addresses the aims of the Innovation Challenge as it has a clearly identified potential to deliver a net benefit to consumers by increasing the speed of connecting new low-carbon technologies and reduce network operations costs. The Project involves network innovation because it aims to develop a novel algorithm/method for risk assessments across the connection queue, enabling a more efficient way of assessing potential connections rather than on the current case-by-case basis. It does not undermine the development of competitive markets as the plan for this Phase consists of user research and technical approaches while enabling competitive markets by allowing for more and faster connections on a network. One Expert Assessor noted that clarity would need to be provided on how the suggested algorithm aims to rank or prioritise connection requests were the Project to apply for a future Phase. The Expert Assessors agreed the Project is innovative as it explores a new way of assessing connections with a new application of probabilistic forecasts. The analytical methods are novel and risky as a solution may be inoperably complex or may not considerably accelerate the connection process, therefore it is suitable to explore as a Discovery Phase. The Project includes participation from a range of stakeholders because it involves the main users and multiple teams across SSEN and looks to widen the range of stakeholders appropriately in later iterations of the Project. It provides value for money and is costed competitively as the value of potential benefits is high and the Expert Assessors noted staff rates for the Project were reasonable. The majority of Expert

Assessors considered the Project to be well thought through and capable of progressing in a timely manner as the Project plan, milestones and risks are of high quality. One Expert Assessor did not consider the Project met this Eligibility Criterion as the Project plan did not test foundational assumptions about what level of analytical improvement is needed for connections forecasting versus other service needs, nor sufficiently plan to gather insights from other related Projects.

#### **Decision from the Office of Gas and Electricity Markets (Ofgem)**

##### **FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding

#### **Recommended Project-specific conditions**

Prior to the completion of the Discovery Phase, the Funding Party must provide to the Monitoring Officer additional clarity on how the suggested algorithm aims to rank and/or prioritise connection requests.

## 4.2 Project 10143133 - Dynamic, Data Driven Asset Rating (3DAR)

#### **Submitted Project description**

With increasing demand for both electrification and renewables connections, many areas of the distribution network are approaching their capacity and will need intervention. Traditionally, DNOs can reinforce the network or procure flexibility services to meet these peaks. These are costly solutions that can have long lead times. By leveraging dynamic asset ratings at scale for the first time at distribution level, this project enables the deployment of a data-driven solution that optimises capacity through real-time, localised weather data and asset modelling. 3DAR will enhance network investment planning, reducing costs and ensuring long-term resilience for faster, more efficient connections.

Eligibility Criteria met or not met – Expert Assessors’ evaluation	Met / Not Met
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met
8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Office of Gas and Electricity Markets (Ofgem)
<b>FUND</b>
<p>The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding. The Project addresses the Innovation Challenge because it will develop novel methods to increase electricity capacity from existing distribution assets and enables earlier connections of new generation sources at lower cost, reducing the need for system reinforcement. It has a clearly identified potential to deliver a net benefit to consumers. It potentially significantly reduces network costs for new generation sources and will avoid significant costs due to network reinforcement or development. The Project involves network innovation as it unlocks new capacity via a mechanism that does not currently exist in distribution networks, by examining the application of established transmission-related dynamic ratings principles. It does not undermine the development of</p>

competitive markets because the key output will be disseminated across GB distribution network operators. The Expert Assessors agreed the Project is innovative and risky because the approach has not been investigated at distribution, therefore is still uncertain. The Project includes participation from a range of stakeholders as the consortium contains expertise in weather and climate modelling as well as across distribution network operators. It provides value for money and is costed competitively because the potential benefits are high and the balance of costs between partners and assets is justified and reasonable. The Project is well thought through and capable of progressing in a timely manner as a well-developed project plan, milestones and risk register have been communicated clearly and the Project is being undertaken by a strong team.

#### **Decision from the Office of Gas and Electricity Markets (Ofgem)**

##### **FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding

#### **Recommended Project-specific conditions**

None

### 4.3 [REDACTED]

### 4.4 Project 10145555 - Design for Live Line Technology Acceleration (DELLTA)

#### **Submitted Project description**

Electrical grid owners regularly perform complex repairs and maintenance tasks to make sure the network is reliable. However, many of the complex operations require outages, and this can put a pressure on the rest of the electrical network



and its future development. Live line working can relieve this pressure, however electrical infrastructure is currently not built with live line working in mind, thus making it hard to deploy this service in most locations. Project DELLTA will look to understand if HV assets and infrastructure can be designed with live line working as a key parameter from the outset.

Eligibility Criteria met or not met – Expert Assessors’ evaluation	Met / Not Met
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met
8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

**Recommendation to the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding. The Project addresses the Innovation Challenge by exploring possible design approaches for new and future transmission network assets which could enable more live line working, thereby reducing outages. It has a clearly identified potential to deliver a net benefit to consumers through the

potential reduction of constraint costs and by reducing the need for future outages, which will speed up connections and alterations to the network. One Expert Assessor advised the Project could detail how the benefits of the Project are directly transferable to other GB Transmission Operators. The Project involves network innovation because it is examining how to design the electrical infrastructure to enable live line working with better efficiency without compromising safety. It does not undermine the development of competitive markets because the eventual output will consist of new products and services not currently available within the GB energy market. The Expert Assessors agreed the Project is considered to be innovative, novel and risky as transmission asset design has limited consideration for live line working and this would therefore be a novel approach and not business as usual. The Project includes participation from a range of stakeholders as it contains expertise in the operational issues and knowledge of HV/EHV plant and equipment. One Expert Assessor noted the Application would be strengthened if it had input from equipment OEMs and contractors who can provide practical comment on constructability and operability. It provides value for money and is costed competitively as the costs associated with deliverables are reasonable. The Project is well thought through and capable of progressing in a timely manner as the Project plan has been communicated clearly and there is a good alignment of the plan with the milestones and risk register.

#### **Decision from the Office of Gas and Electricity Markets (Ofgem)**

##### **FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

#### **Recommended Project-specific conditions**

Prior to the end of the Discovery Phase the Funding Party will evidence to the Monitoring Officer early engagement from equipment OEMs and contractors who

work with NGET, to assure that recommendations address buildability and operability.

Prior to the end of the Discovery Phase the Funding Party will evidence to the Monitoring Officer engagement with other GB Transmission Operators sharing how benefits arising from the Project are directly transferable to other Transmission Operators.

## 5 Greater heat flexibility Innovation Challenge: Summary of Projects

This section covers the assessment of Cycle 1 Discovery Phase Applications received into the 'Greater heat flexibility' Innovation Challenge.

In order to protect intellectual property rights (IPR), unsuccessful Projects have been redacted from the final published version.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Recommended by Expert Assessors for funding (Yes/No)	Decision by Ofgem for funding (Yes/No)
10145456	FLEX-STORE: FLEXible STORE of electrified thermal energy	Northern Powergrid	177,008	28,192	148,816	Yes	Yes

## 6 Greater heat flexibility Innovation Challenge: Expert Assessors' recommendations on Projects

### 6.1.1 Project 10145456, FLEX-STORE FLEXible STORE of electrified thermal energy

Submitted Project description
<p>This Project addresses the challenges of transitioning to a predominantly electrified energy system from a multi-vector system reliant on gas and diesel. We propose using electrified thermal storage solutions, such as phase change materials and thermochemical storage, to enhance grid stability and provide backup during supply disruptions. This approach ensures reliable heating for vulnerable customers while offering additional benefits like cost savings, reduced peak demand, and improved heat and grid flexibility. By actively managing heat storage based on grid signals, the project supports decarbonisation efforts and explores market opportunities for integrating thermal storage into the future energy landscape.</p>

Eligibility Criteria met or not met – Expert Assessors' evaluation	Met / Not Met
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met

8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met
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**Recommendation to the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

The majority of Expert Assessors agreed that the Project has met the Eligibility Criteria and recommended the Application for funding. However, one Expert Assessor did not recommend the Application for funding as they considered there to be a risk of duplicating the work of previously funded Projects.

The Project addresses the aims of the Innovation Challenge in its focus on using thermal storage to support flexibility and resilience. It has a clearly identified potential to deliver a net benefit to consumers through reducing bills by taking advantage of off-peak tariffs and maximising the use of existing network capacity without upgrades. The Project involves network innovation in developing new flexibility procurement and charging arrangements to explore how thermal storage could be used more in network flexibility markets. It does not undermine the development of competitive markets as the technologies developed would support market competitiveness. The majority of Expert Assessors agreed that the Project is innovative and novel because it aims to bring forward novel thermal storage technologies and understand their role for customers and networks. However, one Expert Assessor felt it was unclear how much of what the Project proposed is innovative versus what may have already been covered by other Projects. The Project includes participation from a range of stakeholders as it involves the network operator, a university, a technology development consultancy, and a housing association, alongside a recognition of the need to engage with Ofgem, DESNZ and consumer bodies. It provides value for money and is costed competitively as the Project costs are appropriate and the distribution of costs among partners and resources is balanced effectively. The 100% contribution from the housing association was noted as being very positive. The Project is well thought through and capable of progressing in a timely manner as it demonstrates a robust Project

management approach with clear workstreams, well-defined dependencies, and a structured risk management strategy. The Expert Assessors noted it was good to see acknowledgment of the regulatory and policy risks with some thought as to how best to manage these.

**Decision from the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

**Recommended Project-specific conditions**

Prior to the completion of the Discovery Phase, the Funding Party must provide evidence to the Monitoring Officer that it has incorporated learnings and maintain distinction from other flexible heat projects, such as Watt Heat, SHIELD, Heatropolis and the NZIP-funded EXTEND project.

## 7 Embedding resilience Innovation Challenge: Summary of Projects

This section covers the assessment of Cycle 1 Discovery Phase Applications received into the 'Embedding resilience' Innovation Challenge.

In order to protect intellectual property rights (IPR), unsuccessful Projects have been redacted from the final published version.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Recommended by Expert Assessors for funding (Yes/No)	Decision by Ofgem for funding (Yes/No)
10143030	RIDES	Scottish Hydro Electric Power Distribution	123,060	12,405	110,655	Yes	Yes
10143148	Digital Decommissioning of Large Scale Equipment	National Gas Transmission	116,499	11,650	104,849	Yes	Yes
10143176	Alt Pipe	National Gas Transmission	170,252	20,479	149,773	Yes	Yes
	[REDACTED]						
	[REDACTED]						
10146603	Gas Network Evolution Simulator (GNES)	Northern Gas Networks	150,724	17,980	132,744	Yes	Yes



## 8 Embedding resilience Innovation Challenge: Expert Assessors' recommendations on Projects

### 8.1 Project 10143030 - RIDES

Submitted Project description
<p>As rural industries decarbonise, they may find this transition challenging. This is where network operators can provide valuable support to help them make the right decisions. Rural networks are often characterised by radial circuits with limited capacity. These circuits are harder and more expensive to reinforce.</p> <p>RIDES will develop a tool to show rural industries their potential decarbonisation pathways. It will also help network companies to understand what their future investments needs will be, allowing efficient, coordinated investment by network companies and their customers.</p> <p>RIDES will smooth and accelerate the path to Net Zero for rural industry.</p>

Eligibility Criteria met or not met – Expert Assessors' evaluation	Met / Not Met
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met

8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met
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<b>Recommendation to the Office of Gas and Electricity Markets (Ofgem)</b>
<p><b>FUND</b></p>
<p>The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding. The Project addresses the Innovation Challenge because it supports modelling and decarbonisation of rural industry, which could potentially deliver network resilience. It has a clearly identified potential to deliver a net benefit to consumers both in the potential to speed up connections and decarbonisation for rural industry, but also in the potential reduction or deferral of network cost more widely. The Project involves network innovation as it will build a digital tool that enables site-specific data to be shared securely between DNOs and other relevant stakeholders. It does not undermine the development of competitive markets as the Project is ensuring learnings are published throughout and the digital tool is designed to be platform agnostic. The Expert Assessors agreed the Project is innovative and novel as it combines system connection, flexibility, identification of clusters and storage under one digital tool. It is also risky as it focuses on a relatively unexplored topic of rural industries which has potentially significant challenges and data gaps. The Project includes participation from a range of stakeholders with knowledge of energy networks, industrial decarbonisation and digital tools, however one Expert Assessor noted that greater evidence of linkages into rural industrial customers would be beneficial. It provides value for money and is costed competitively as the costs are proportionate and day rates of the participants seem reasonable and in line with expectations. The outputs also have potential to generate long terms energy bill savings and defer network reinforcement. The Project is well thought through and capable of progressing in a timely manner as the methodology is well set out with well-defined roles and responsibilities.</p>

**Decision from the Office of Gas and Electricity Markets (Ofgem)****FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

**Recommended Project-specific conditions**

None

## 8.2 Project 10143148 - Digital Decommissioning of Large Scale Equipment

**Submitted Project description**

As the gas transmission network responds to a changing energy system, from drivers including the transition to Net Zero and to changes in supply and demand, we are required to decommission our large site-based assets in certain locations. Decommissioning is a multifaceted endeavour that goes beyond the conclusion of an asset's lifespan and encompasses a complex deconstruction process. This project will implement an innovative AI tool to help National Gas manage decommissioning to drive benefits such as increasing the accuracy of cost estimation, ways to reduce carbon emissions, identify re-use potential and lower the overall time taken to decommission.

<b>Eligibility Criteria met or not met – Expert Assessors' evaluation</b>	<b>Met / Not Met</b>
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met

6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met
8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

### Recommendation to the Office of Gas and Electricity Markets (Ofgem)

#### FUND

The majority of Expert Assessors agreed that the Project has met the Eligibility Criteria and recommended the Application for funding. One Expert Assessor expressed the view that the Project would undermine the development of competitive markets by not progressing through the procurement process in the existing market for digital twins.

The Project addresses the Innovation Challenge as it involves studying how machine learning and AI can streamline decommissioning of the large gas infrastructure assets. This will increase over time as the energy system decarbonises - with the possibility of developing a single decommissioning platform which is not currently available in the market. It has a clearly identified potential to deliver a net benefit to gas consumers because it offers the potential to reduce the costs of decommissioning of large-scale equipment through the streamlining of processes. Added to this, it offers the potential for the decommissioning equipment to be identified and sold to other infrastructure projects, creating revenue that could be passed back to the consumer through further reduced costs. The Project involves network innovation because it uses machine learning and AI to look at the best ways to approach decommissioning within the gas networks. It does not undermine the development of competitive markets because the outputs and learning will be made available to other industries and networks. Additionally, the demonstration of a singular platform for decommissioning would create a marketplace for competitors to create their own versions of a similar solution. The Expert Assessors agreed the

Project is innovative and risky because it is taking some known tools and other innovative techniques to produce a single process to plan and deliver decommissioning more efficiently and based on circular economy principles. The Project includes participation from a range of stakeholders because the application mentions the sharing of outputs widely; however, it was noted that the Application could have been enhanced by a better developed stakeholder engagement plan. One Expert Assessor noted that the lack of technology experts in digital twins or common data environment was concerning. The majority of Expert Assessors stated that the Project provides value for money and is costed because it is using in-house capability and knowledge and involves a Project Partner with a good knowledge of the asset issues and the desired solution. The Expert Assessors considered the Project to be well thought through and capable of progressing in a timely manner as the Project plan, milestones and risks are of high quality.

#### **Decision from the Office of Gas and Electricity Markets (Ofgem)**

##### **FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

#### **Recommended Project-specific conditions**

Prior to the completion of the Discovery Phase, the Funding Party must provide an updated stakeholder engagement strategy to the Monitoring Officer identifying any experts in digital twins or common data environments.

### **8.3 Project 10143176 - Alt Pipe**

#### **Submitted Project description**

As the owner of the National Transmission System (NTS), National Gas is committed to responsibly managing our redundant assets in a manner that contributes to a sustainable, lower-carbon future by decommissioning them responsibly, refurbishing for re-use where viable, and/or or changing their purpose where possible. This

Discovery Project will identify decommissioned elements of redundant pipework on the transmission system which are unlikely to be used for refurbishment or part of any wider repurposing of the core network, and explore the potential of repurposing these for alternative uses including the storage and/or transmission of electrical energy, heat, fuels, water and data

Eligibility Criteria met or not met – Expert Assessors’ evaluation	Met / Not Met
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met
8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

**Recommendation to the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

The Expert Assessors agreed that the Project has met the Eligibility Criteria and recommended the Application for funding.

The Project addresses the Innovation Challenge as it explores the technical and economic feasibility of reusing redundant gas network assets. This has the potential to turn the redundant network from an ongoing cost into a revenue generator that

speeds up energy transition projects. It has a clearly identified potential to deliver a net benefit to gas and electricity through repurposing existing assets to potentially deliver significantly reduce costs via other energy vectors (and potentially reduced costs in other utilities). It can also reduce costs for decommissioning stranded gas assets. The Project involves network innovation because it looks at repurposing pipes and leverages existing infrastructure for new purposes, creating new revenue streams, whilst also supporting decarbonisation of the energy system. It does not undermine the development of competitive markets as the Project will create new market opportunities, supporting open competition in emerging sectors. The findings of the Project will be disseminated widely in support of this. The Expert Assessors agreed the Project is innovative and novel because it is looking at entirely new options for reusing existing pipes, that have not been previously assessed. It is also risky because many options are being considered, some of which are unlikely to be feasible, but there is great value in looking at many possible options to ensure this is the case, to evaluate what is most likely to have high value. The Project includes participation from a sufficient range of stakeholders because there is a clear plan to engage a wide range of stakeholders including regulatory bodies, potential users and industry partners through workshops and consultations throughout the Project. It provides value for money and is costed competitively because the potential value is considerably higher than the costs at this stage of the Project. The Expert Assessors considered the Project to be well thought through and capable of progressing in a timely manner as the Project plan, milestones and risks are of high quality.

**Decision from the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

**Recommended Project-specific conditions**

None

## 8.4 [REDACTED]

## 8.5 [REDACTED]

## 8.6 Project 10146603 - Gas Network Evolution Simulator (GNES)

<b>Submitted Project description</b>
<p>The Gas Network Evolution Simulator (GNES) is an innovative project aimed at optimising the transition away from natural gas by using advanced Agent Based Modelling (ABM). GNES simulates the complex interactions between stakeholders such as Gas Distribution Networks (GDNs), Electricity Networks, consumers, and policymakers. It analyses economic, social, and environmental impacts of gas network decommissioning and explores new infrastructure opportunities. By identifying challenges and benefits, GNES supports the development of cost effective, equitable solutions that support vulnerable populations, ensuring a smooth transition to low-carbon energy sources while minimising consumer disruption and maximising network efficiency.</p>

<b>Eligibility Criteria met or not met – Expert Assessors’ evaluation</b>	<b>Met / Not Met</b>
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met
6. Projects must include participation from a range of stakeholders.	Met



7. Projects must provide value for money and be costed competitively.	Met
8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

**Recommendation to the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

The Expert Assessors agreed that the Project has met the Eligibility Criteria and recommended the Application for funding.

The Project addresses the Innovation Challenge as it will use modelling to analyse the economic, social and environmental impacts of gas network decommissioning in order to support cost-effective, equitable solutions for consumers and other energy market participants. It has clearly identified potential to deliver a net benefit to gas consumers through cost savings on energy bills, by developing a tool which has the potential to reduce the operational costs of energy transition. The Project involves network innovation because it will result in enabling network operators to develop innovative, cost-effective decommissioning strategies and potentially support the adoption of new technologies and business models. It does not undermine the development of competitive markets as the Project will provide valuable data to all relevant stakeholders. The Expert Assessors agreed the Project is innovative and risky due to the complex challenge with regard to gaining adoption and usage as it is using an alternative modelling technique to assess the impact of the low carbon transition. The Project includes participation from a range of stakeholders because it includes multiple gas networks in the project team, and because the stakeholders considered and targeted for dissemination range across the whole energy system including consumers and technology suppliers. It provides value for money and is costed competitively as the costs have been benchmarked to ensure competitiveness. The Expert Assessors considered the Project to be well thought through and capable of progressing in a timely manner as the Project plan, milestones and risks are of high quality.

**Decision from the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

**Recommended Project-specific conditions**

Prior to the completion of the Discovery Phase, the Funding Party must provide evidence to the Monitoring Officer of how the Project will integrate itself into existing decision-making processes.

## 9 Accelerating towards Net Zero energy networks Innovation Challenge: Summary of Projects

This section covers the assessment of Cycle 1 Discovery Phase Applications received into the 'Accelerating towards Net Zero energy networks' Innovation Challenge.

In order to protect intellectual property rights (IPR), unsuccessful Projects have been redacted from the final published version.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Recommended by Expert Assessors for funding (Yes/No)	Decision by Ofgem for funding (Yes/No)
10143004	I LAD Innovating Losses Analysis and Detection	Southern Electric Power Distribution	176,005	26,838	149,167	Yes	Yes

10 Accelerating towards Net Zero energy networks Innovation Challenge:  
 Expert Assessors’ recommendations on Projects

10.1 Project 10043004 - I LAD Innovating Losses Analysis and Detection

Submitted Project description
<p>Electrical Losses are the difference in the energy that enters the electrical network and that which reaches consumers premises. Without intervention losses are forecast to increase with increasing electrification. They not only directly impact on customers’ bills and our carbon footprint, but losses due to theft often lead to serious safety incidents. Current methods of identifying and monitoring losses are outdated and inefficient.</p> <p>The I-LAD project will utilise modern data techniques to improve:</p> <ul style="list-style-type: none"> <li>• automating and modernising losses data collection, identification and modelling.</li> <li>• understanding of total losses landscape.</li> <li>• improving cross sector coordination of losses interventions.</li> <li>• automating ongoing losses monitoring and measurement.</li> </ul>

Eligibility Criteria met or not met – Expert Assessors’ evaluation	Met / Not Met
1. Projects must address the Innovation Challenge set by Ofgem.	Met
2. Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3. Projects must involve network innovation.	Met
4. Projects must not undermine the development of competitive markets.	Met
5. Projects must be innovative, novel and/or risky.	Met

6. Projects must include participation from a range of stakeholders.	Met
7. Projects must provide value for money and be costed competitively.	Met
8. Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

<b>Recommendation to the Office of Gas and Electricity Markets (Ofgem)</b>
<b>FUND</b>
<p>The Expert Assessors agreed that the Project has met the Eligibility Criteria and recommended the Application for funding.</p> <p>The Project addresses the Innovation Challenge as it will develop solutions to reduce efficiency losses in electricity transmission and distribution systems. It has a clearly identified potential to deliver a net benefit to consumers as the reduction of technical losses will lead to better voltage and power quality, whereas the reduction of non-technical losses will result in a reduction to consumers' electricity bills. The Project involves network innovation because it will result in the development of an online tool to monitor losses which has not been used in the GB energy market. One Expert Assessor noted that the Project could focus more strongly on assessing the network benefits and improved asset utilisation. It does not undermine the development of competitive markets as the main task is to develop techniques for identifying, modelling and monitoring losses which will be made available to all energy suppliers. The Expert Assessors agreed that the Project is innovative as it explores machine learning and AI techniques to model and record losses on the network. The Project may face issues of insufficient data availability to validate proposed data models, which makes the project risky, and the Expert Assessors viewed the aim to provide full quantification of the benefits of improved losses identification as novel. The Project includes participation from a range of stakeholders because it involves stakeholders with relevant experience covering analysis of smart meter data, machine learning and AI experience, as well as a</p>

range of experience across the GB energy system in transmission operators, distribution network operators and energy supply. It provides value for money and is costed competitively as the value of potential benefits is high through improved power quality and better voltage which could lead to a reduction in consumers' bills. The Expert Assessors considered the Project to be well thought through and capable of progressing in a timely manner as the Project plan, milestones and risks are of high quality.

**Decision from the Office of Gas and Electricity Markets (Ofgem)**

**FUND**

Ofgem agrees with the Expert Assessors and approves this Project for funding.

**Recommended Project-specific conditions**

None