

Decision

Decision on the Strategic Innovation Fund: round 2 Discovery Phase (unsuccessful Projects redacted)

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Contact	Marzia Zafar, Deputy Director of Strategy & Decarbonization
Team:	Networks
Telephone	020 7901 7295
Email:	Marzia.Zafar@ofgem.gov.uk

The Strategic Innovation Fund (SIF) supports network innovation that contributes to the achievement of net zero, while delivering net benefits to energy consumers. It facilitates collaboration with other public funders of innovation so that activities appropriately funded by network consumers are coordinated with activities funded by Government, and funding gaps are avoided.

In May 2022, we launched our Round 2 Innovation Challenge focusing on four key challenges facing networks – Supporting a just energy transition, Preparing for a net zero power system, Improving energy system resilience and robustness, and Accelerating decarbonisation of major energy demands¹.

Of them 65 Applications received across the four Innovation Challenges for the round 2 Discovery Phase we have now decided to fund 53 Projects across the four Innovation Challenges.

¹ For more information on the round 2 Innovation Challenges please see:
<https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges>

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Executive summary

The Strategic Innovation Fund (SIF) is a funding mechanism under the RIIO-2 network price control² for the Electricity System Operator, Electricity Transmission, Electricity Distribution³, Gas Transmission and Gas Distribution sectors. The SIF was launched in July 2021 by Ofgem and to support the SIF's operation, Ofgem partnered with Innovate UK (the UK's innovation agency and part of UKRI, a non-departmental public body).

The SIF focuses on finding and funding ambitious, innovative Projects with the potential to accelerate the transition to Net Zero⁴ while delivering net benefits to energy consumers⁵. In order to mitigate the risk associated with the innovation process, the default approach is that innovation will be funded in three Project Phases (Discovery Phase, Alpha Phase and Beta Phase).

Each of the Phases focuses on different aspect of the innovation process. The Discovery Phase focuses on defining the problem the Project is trying to solve and the value in solving it. The Alpha Phase focuses on experimental development, preparing and testing the different solutions to the Problem identified during the Discovery Phase, ahead of any future large-scale demonstrations. The Beta Phase focuses on building, operation and/or demonstration through the deployment of the solution to the Problem.

Four Innovation Challenges were launched in May 2022 for round 2 of the SIF⁶. These Innovation Challenges focus on strategic issues currently facing networks – supporting a just energy transition, preparing for a net zero power system,

² Further detail regarding the RIIO-2 network price control can be found here: <https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/network-price-controls-2021-2028-riio-2>

³ Following a formal consultation, we have decided to allow DNOs to be able to submit an Application to the round 2 Discovery Phase prior to the RIIO-ED2 licences coming into force on 1 April 2023. No decision on the round 2 Discovery Phase Projects will be made prior to the RIIO-ED2 Final Determinations and underlying SIF licence condition coming into force. For more information on this decision, please see:

<https://www.ofgem.gov.uk/sites/default/files/2023-02/SIF%20Governance%20Document%20v2.1%20final%20clean.pdf>.

⁴ The UK Government and Welsh Government have both committed to reach net zero carbon emissions by 2050, while the Scottish Government has set a target date for net zero emissions by 2045.

⁵ Full details about the SIF can be found here: <https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/network-price-controls-2021-2028-riio-2/network-price-controls-2021-2028-riio-2-riio-2-network-innovation-funding/strategic-innovation-fund-sif>

⁶ <https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges>

improving energy system resilience and robustness, and accelerating decarbonisation of major energy demands.

This Funding Decision is for the Discovery Phase of round 2 of the SIF. Projects in the round 2 Discovery Phase must start by 3 April 2023, end by 30 June 2023 and not request funding of more than £150,000, exclusive of VAT. Projects submitted to the SIF must follow the SIF Governance Document⁷ and meet the Innovation Challenge-specific requirements.

The SIF Governance Document also includes information and details on the SIF, the role of Innovate UK, the purpose of this document, and how the SIF works. Consistent with the SIF Governance Document, Applications submitted by the close date of 23 November 2022 were assessed by Expert Assessors based on Eligibility Criteria in chapter 2 of the SIF Governance Document. Each Application that was assessed was assessed by three Expert Assessors. In some instances, a majority recommendation (two of three Expert Assessors) was given by the Expert Assessors against an Eligibility Criterion. Where we have agreed with the majority, we have considered the views of all assessors and have preferred the views of the majority. More information on the role and selection of the Expert Assessors, and the assessment process, is available in the recommendations report published alongside this decision.

This document sets out our decisions on the Applications we received. Projects not selected for SIF Funding have been redacted from this published document in order to protect the IPR and innovations of unsuccessful Projects.

Alongside this document we are publishing: the recommendations report from the Expert Assessors, the SIF Project Directions, and links to where detailed information regarding the funded Projects can be found.

⁷ <https://www.ofgem.gov.uk/sites/default/files/2023-02/SIF%20Governance%20Document%20v2.1%20final%20clean.pdf>

Discovery Phase round 2 submissions

We received 65 Applications across the four challenges of this Discovery Phase by the closing deadline of 23 November 2022.

Of the 65 Applications received, we have approved the funding of 53 Discovery Phase Projects for a total of £6,103,246 of SIF Funding. The 53 approved Projects are outlined in Table 1 below.

Summary of Projects approved for Discovery Phase SIF Funding

Table 1: Supporting a just energy transition Projects approved for Discovery Phase SIF Funding

Network type	Project title and <i>description</i>	Funding Party	Total SIF Funding Requested (£)
Gas	Hy-Fair. <i>Hy-Fair; leaving no one behind in the transition to green energy.</i>	SOUTHERN GAS NETWORKS PLC	111,854
Electricity	Net Zero Terrace. <i>This project will demonstrate how to decarbonise an entire terraced street using a Smart Local Energy System that is integrated with the network, optimised, affordable to consumers and easily replicable across GB.</i>	ELECTRICITY NORTH WEST LIMITED	129,519
Electricity	EV Respond. <i>EV-Respond; safeguarding consumers using the power of electric vehicles.</i>	NATIONAL GRID ELECTRICITY DISTRIBUTIO	121,384

		N (WEST MIDLANDS) PLC	
Electricity	VIVID - Vulnerability Identification Via Informative Data. <i>Project VIVID will develop new techniques to use smart meter and public data sets to identify which consumers would most benefit from timely, relevant and free offers of practical and financial support from their local authority, reputable charities and responsible energy companies.</i>	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	94,459
Electricity	Guidelight. <i>Low-income and vulnerable consumers receive grant funded LCTs through local authority retrofit schemes, but without supporting households to switch tariffs or using digital optimisation tools, retrofit schemes risk creating a socio-technical performance gap that this project will evidence and address through a range of capability-based interventions that are tailored to those in vulnerable circumstances.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	119,628
Electricity	SHIELD (Smart Heat and Intelligent Energy in Low-Income Districts). <i>SHIELD aims to test and deploy new approaches and business models for</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	82,163

	<i>installing low carbon technologies (LCTs) such as photovoltaic (PV), other renewable generation, storage, and electric vehicles (EVs) in conjunction with low carbon heating solutions to make the decarbonisation of heat and energy affordable and accessible to vulnerable consumers.</i>		
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Table 2: Preparing for a net zero power system Projects approved for Discovery Phase SIF Funding

Network type	Project title and <i>description</i>	Funding Party	Total SIF Funding Requested (£)
Electricity	INSIGHT (Innovative Network Status Intelligence Gathered by Holistic use of Telemetry and Simulation). <i>INSIGHT seeks to understand, classify, predict and define actions to manage potential new forms of electrical network instability (e.g. voltage/ frequency/ power oscillations) on a Net Zero system.</i>	SCOTTISH HYDRO ELECTRIC TRANSMISSION PLC	83,515
Gas	Electrolyser Improvements driven by Waste Heat Recovery. <i>The Electrolyser Improvements driven by Waste Heat Recovery Project looks to demonstrate efficiency improvements in hydrogen</i>	NATIONAL GRID GAS PLC	95,714

	<i>production through the use of waste heat produced in the transportation of network gases.</i>		
Electricity	<i>Shifting Currents. Shifting Currents will investigate how flexibility can be embedded in the operations of the drinking and wastewater networks of water utilities, to deliver whole systems benefits to customers of reduced carbon intensity of water and electricity networks and cost-effective management of electrical capacity.</i>	NATIONAL GRID ELECTRICITY DISTRIBUTION	99,040
Gas	<i>Hybrid Storage Systems for site safety and efficiency. The Hybrid Storage System will enable safe and efficient storage of hydrogen on operational sites using an optimised approach to hydrogens physical state against production and demand profiles.</i>	NATIONAL GRID GAS PLC	133,656
Electricity	<i>Powering Wales Renewably. Using the whole electricity system approach, local Government and network operators will collaboratively identify innovation priorities to progress Welsh decarbonisation plans and increase renewable electricity hosting capacity whilst delivering net</i>	NATIONAL GRID ELECTRICITY SYSTEM OPERATOR LIMITED	135,491

	<i>benefits to Wales's citizens and their communities.</i>		
Electricity	Diversified Flexible Queue Management. <i>Accelerating decarbonisation by the considering diversity and flexibility of already connected large assets and those within the connection queue.</i>	NORTHERN POWERGRID (NORTHEAST) PLC	147,151
Electricity	Artificial Forecasting. <i>Harnessing the power of machine learning and readily available data to develop the dynamic load forecasts and predictive modelling approaches that an active low carbon DSO network requires.</i>	NORTHERN POWERGRID (NORTHEAST) PLC	126,722
Electricity	Power Block. <i>Commercial buildings are currently an untapped source of energy flexibility for the networks. This project looks to unlock the value and increased participation of commercial buildings in the flexibility market.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	42,355
Electricity	CRoDo+ Climate Resilience Demonstrator (extension to new climate risks). <i>CRoDo+ (Climate Resilience Demonstrator - extension to new climate risks) is a development on the original CRoDo decision support tool by incorporating newly developed</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	112,284

	<i>models of DNO asset failure risk under extreme weather conditions. This will enhance the ability of network operators and wider connected asset owners to build systemic climate resilience.</i>		
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**Table 3: Improving energy system resilience and robustness
Projects approved for Discovery Phase SIF Funding**

Network type	Project title and <i>description</i>	Funding Party	Total SIF Funding Requested (£)
Gas	<i>Distribution Network Information Modelling (DNIM). DNIM aims to support the energy transition with the development of a cost effective and non-disruptive robotic system that will internally map and analyze the entire gas distribution network in a cost-effective manner.</i>	SOUTHERN GAS NETWORKS PLC	2
Electricity	<i>SIF Black start Demonstrator from offshore wind (SIF BLADE). Enabling a low-cost net zero GB electricity network that is robust and secure, by investigating and demonstrating how novel technology can allow offshore wind farms to restore the onshore grid following a black out.</i>	SP TRANSMISSION PLC	149,226

Electricity	REWIRE (REsidential Whole System Integrated REsilience). <i>REWIRE will develop innovative domestic level multi-energy systems that exploit cross-vector technologies to provide flexible demand profiles, thereby alleviating network constraints, maintaining security of supply and improving overall energy system resilience.</i>	ELECTRICITY NORTH WEST LIMITED	149,947
Electricity	SECURE - Securing the future delivery of all HVDC projects by de-risking the HVDC cable supply chain. <i>SECURE - Securing the future delivery of all HVDC cable projects by de-risking the HVDC supply chain.</i>	SCOTTISH HYDRO ELECTRIC TRANSMISSION PLC	147,909
Gas	Hydrogen Cost Reduction (HyCoRe). <i>This HyCoRe Discovery project seeks to acquire new knowledge regarding the optimal placement of electrolyzers and energy storage devices, which will be applied in subsequent phases to develop a software tool to allow offshore wind/hydrogen project developers to optimise the planning process, reducing costs associated with offshore-wind/hydrogen production and its integration into the gas</i>	NORTHERN GAS NETWORKS LIMITED	137,262

	<i>network, and accelerating the net-zero transition.</i>		
Electricity	<i>REACT (Rapid Evaluation Areal Connection Tool). Strategic geographic planning of all future demand and generation connection requests, using green hydrogen as a use case.</i>	SCOTTISH HYDRO ELECTRIC TRANSMISSION PLC	149,320
Gas	<i>Dynamic Networks. Dynamic Networks: Enabling faster LCT connections in constrained areas of the network, benefiting customers and accelerating Net Zero.</i>	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	139,273
Electricity	<i>Supply Chain Resilience in the Transition. Without a structured plan or strategy for procurement, gas networks could be at risk of very long lead times for key assets during a significant change to the industry such as the energy transition.</i>	NATIONAL GRID GAS PLC	77,893
Electricity	<i>D-suite. Our proposal is ambitious in its scope but carefully planned to ensure delivery of SMART goals at different SIF-Phases. It is focused on addressing the necessary transformation of the LV network. The Discovery phase comprises the elaboration of a feasibility study which, recognising the latest</i>	SP ENERGY NETWORKS: MANWEB PLC	131,875

	<i>advances in power electronic technology and the most recent learnings from relevant innovation projects, analyses the costs and benefits of deploying D-suite devices, which in-turn lays a solid foundation for the successful trial and roll-out in the later phases of SIF.</i>		
Electricity	<i>Scenarios for Extreme Events. This project seeks to develop a proactive approach to identifying and analysing extreme, unexpected events, and forecasting their impact on the electricity grid and wider energy system. Novel use of probabilistic modelling combined with insights from risk management, insurance costing and climate modelling experts will be used to develop a decision-making tool to improve whole system resilience in a rapidly changing world.</i>	NATIONAL GRID ELECTRICITY SYSTEM OPERATOR LIMITED	149,999
Electricity	<i>Resilient Customer Response. Resilient Customer Response will explore how new categories of customers with behind the meter assets can help themselves and other local network customers by</i>	NORTHERN POWERGRID (NORTHEAST) PLC	117,889

	<i>improving resilience in the event of network outages.</i>		
Electricity	Whole Energy System Resilience Vulnerability Assessment. <i>Project WELLNESS will develop a standardised approach to embed resilience into whole energy network decision making.</i>	NATIONAL GRID ELECTRICITY TRANSMISSION PLC	142,820
Electricity	SF6 whole life strategy. <i>To develop an economic, efficient and holistic replacement strategy for SF6 that will support GB's ambition to facilitate a net-zero and resilient energy system.</i>	NATIONAL GRID ELECTRICITY TRANSMISSION PLC	119,607
Electricity	SCOHL - SuperConductor OverHead Lines. <i>The SCOHL project, led by National Grid Electricity Transmission (NGET), will explore the opportunity for deploying high-capacity, superconducting overhead lines in the UK, gauge technical and economic limitations, and roadmap a means to scale adoption for customer benefit.</i>	NATIONAL GRID ELECTRICITY TRANSMISSION PLC	132,507
Gas	NextGen Electrolysis – Wastewater to Green Hydrogen. <i>Next Gen Electrolysis -- Wastewater to Green Hydrogen will look to reduce the cost of hydrogen production by tackling the real-world operational</i>	WALES & WEST UTILITIES LIMITED	81,422

	<i>constraints of electrolytic production, specifically the need for high purity water, by utilising less pure/wastewater sources to reduce demand on pure mains water, passing cost savings to end consumers.</i>		
Electricity	<i>CommsConnect. The project addresses the challenge of providing reliable and resilient high-quality communications for future grid operations at lower capital and operational costs by combining public and private communication networks.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	110,138
Electricity	<i>WARN (Weather Alerts and Risk analysis for Network operators). The WARN project aims to develop and test an integrated digital solution to monitor weather and climate-related asset vulnerabilities and enable Distribution Network Operators (DNO) to better respond to weather shocks, improve operational preparedness, make better decisions, and inform planning that will improve the robustness and resilience of distribution networks and their operations to future climate change.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	109,647

Electricity	<i>Connectrolyser. Connectrolyser aims to scale hydrogen electrolyser hub development by developing a novel electricity connection agreement and flexibility product to expedite new connections and support the societal and industrial hydrogen demand to achieve net zero while minimising impact of the network.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	118,525
Electricity	<i>Trinity. By determining and then implementing the requirements, specifications and architecture for control room simulator facilities, Trinity seeks to address the increasing complexity facing control room staff and systems that is being driven by the Net Zero transition. If successful, it will enhance DNOs' abilities to handle conflicts between different priorities and parties, better manage uncertain levels of demand and generation, maintain system resilience, develop DSO capabilities, and test and exercise innovative solutions ahead of implementing into the production system.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	134,793
Gas	<i>Looking-Glass. Project Looking-glass will provide real-time assessment of Network Operator's resilience and robustness through</i>	SOUTHERN GAS	88,007

	<i>big data analysis of infrastructure and security data, ensuring the Networks are secure during the Net Zero transition</i>	NETWORKS PLC	
Gas	<i>Digital Inspector. Digital Inspector will be a complete ecosystem for monitoring and managing welding being undertaken across multiple different locations by connecting procedure approval and welder approval databases to real time weld data acquisition. The project is designed to be scalable to include NDT digital data and connect to other SaaS systems such as Building Information Management (BIM) software. Successful delivery of the overall project concept will improve energy system resilience and robustness through early identification of fabrication issues and non-conformances, reducing down time and requirements for later stage rework.</i>	CADENT GAS LIMITED	47,600

**Table 4: Accelerating decarbonisation of major energy demands
Projects approved for Discovery Phase SIF Funding**

Network type	Project title and <i>description</i>	Funding Party	Total SIF Funding Requested (£)

Electricity	<i>RetroMeter. RetroMeter will provide and demonstrate a consistent methodology to accurately measure the energy and cost savings of retrofit energy efficiency measures, unlocking pay-for-performance financing, increasing uptake and leading to reduced costs for consumers and additional flexible services for the DNO.</i>	ELECTRICITY NORTH WEST LIMITED	148,081
Electricity	<i>LEO-N. LEON is looking at how careful coordination of a new approach to decarbonising homes and businesses combined with coordinated local energy planning can accelerate net zero.</i>	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	141,756
Electricity	<i>Tyseley Environmental Enterprise District. This project is an investigation of how a complex, multi-vector energy system with significant local generation and storage can be developed to be optimally resilient and deliver best value to a mixed local community of industry and domestic consumers, alongside ongoing regeneration of the area.</i>	NATIONAL GRID ELECTRICITY DISTRIBUTION (SOUTH WEST) PLC	145,216
Electricity	<i>Planning Regional Infrastructure in a Digital Environment (PRIDE). PRIDE examines how using a digital twin to visualise and model changes</i>	NATIONAL GRID ELECTRICITY	130,641

	<i>to electricity, heat, gas, transport, digital and water infrastructure, can make interdependencies, market opportunities and business cases more visible, therefore ensuring the investment decisions enabling decarbonisation of major loads are efficient and optimised.</i>	DISTRIBUTION	
Electricity	<i>Inform. Inform provides an automated energy use and connections estimator to accelerate the decarbonisation of larger sites/non-domestic buildings. This better informs initial scheme development planning.</i>	NORTHERN POWERGRID (NORTHEAST) PLC	123,196
Gas	<i>Integrated Hydrogen Transport Hubs. The Integrated Hydrogen Transport Hubs project will identify opportunities for the co-location of electrolytic hydrogen refueling stations and heat demand, where the cost-benefit of waste heat will be assessed in order to minimise the levelized cost of hydrogen for consumers.</i>	WALES & WEST UTILITIES LIMITED	135,169
Electricity	<i>Proportional Investment of Networks in Energy Efficiency Retrofit (PIONEER). The project aims to develop commercial models by which the DNOs can provide funding for thermal energy</i>	NATIONAL GRID ELECTRICITY DISTRIBUTION	125,446

	<i>efficiency (EE) measures and to demonstrate through pre and post retrofit monitoring the impact these measures have on network loads.</i>		
Electricity	<i>Indus. Indus builds on the successful concept development project in the Black Country and will develop and deploy a network-led commercial business model that optimises the energy use of mid-sized industrial parks, making electrification of industrial heat more economic and optimising the use of flexibility and onsite generation thus accelerating decarbonisation of this significant source of heat and energy demand.</i>	UK POWER NETWORKS (OPERATION S) LIMITED	141,349
Electricity	<i>Heatropolis. The Heatropolis project aims to accelerate the decarbonisation of existing heat networks by developing, deploying, and testing a data-driven framework that will deliver a smarter, more flexible, and integrated energy system. The framework will maximise the use of existing electricity network capacity while minimising the need for network reinforcement, the curtailment of renewable</i>	UK POWER NETWORKS (OPERATION S) LIMITED	146,195

	<i>generation, and cascading costs to customers.</i>		
Electricity	<i>Full Circle. Full Circle aims to make low-carbon heating affordable for vulnerable and hard to reach customers by developing a commercial and operational framework for heat network developers, property developers and ESCos (Energy Service Companies) to recover low-grade waste heat from DNO transformers to improve the efficiencies of their heat networks and reduce their costs.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	108,453
Electricity	<i>Lightspeed. To help with the rapid increase in the UK's public EV charging infrastructure that is required to meet expected consumer demand, especially for the 40% of customers without a driveway, this solution aims to develop a bidirectional lamppost-based EV charging solution that would support both smart charging and V2G capabilities, while providing faster EV charging at 7 -- 22 kW, without requiring major network upgrades.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	140,552
Gas	<i>Calfacto Latent Energy. This project is to the efficiency of hybrid heat</i>	SOUTHERN GAS	82,469

	<i>pumps when coupled with thermal stores through an innovative heat exchanger design.</i>	NETWORKS PLC	
Gas	<i>Net Zero Community Energy Hubs. Developing models and control systems for co-location of heat networks behind the meter with flexible assets.</i>	SOUTHERN GAS NETWORKS PLC	81,315
Electricity	<i>Park & Flex. Park & Flex will explore the current and future opportunity for the provision of flexibility services from V2X enabled EVs in car parks and the EV and network infrastructure required to do so -- working with stakeholders to develop and test real-world flexibility products and customer propositions. The outcome will be a roadmap showing who is best placed to address any barriers to unlocking the untapped potential of this resource.</i>	UK POWER NETWORKS (OPERATIONS) LIMITED	108,554
Gas	<i>Carnot Gas Plant. The project is to develop a Carnot Gas Plant integrated with a heat network to provide efficiency improvements and cross-vector flexibility.</i>	SOUTHERN GAS NETWORKS PLC	93,952
Electricity	<i>Heat Risers. Heat Risers aims to accelerate the decarbonisation of multi-occupancy buildings and</i>	UK POWER NETWORKS	92,341

	<i>reduce costs for all using whole building solutions -- working with market participants, investors, and stakeholders to develop viable routes to market, and investigate the incentives and funding mechanisms required.</i>	(OPERATION S) LIMITED	
Electricity	<i>Watt Heat. Watt Heat aims to accelerate the decarbonisation of residential heat and reduce costs for all by stimulating the market for greater demand flexibility through heat storage -- working with market participants, investors, and stakeholders to develop the flexibility products required to share the benefits that these technologies can deliver.</i>	UK POWER NETWORKS (OPERATION S) LIMITED	86,697

1. Decision on Innovation Challenge: Supporting a just energy transition

Section Summary

This chapter contains Ofgem’s decision on Applications in response to the ‘supporting a just energy transition’ Innovation Challenge. We have decided to fund 6 Projects, with a total of £659,007 of SIF Funding being distributed. This consists of 1 Projects led by a gas network and 5 Projects led by an electricity network.

Update on the Innovation Challenge

1.1. This Innovation Challenge is focused on decarbonisation approaches that embed a range of consumer needs at the core of the development of new products and services to ensure a just and fair transition net zero is upheld.⁸

1.2. A total of 7 proposals were submitted to UKRI through the IFS portal in relation to this challenge for the Discovery Phase by the closing deadline of 11am on 23 November 2022.

1.3. Further information on the Supporting a just energy transition Innovation Challenge for the Discovery Phase of round 2 can be found on the IFS portal.⁹

Summary of our decisions

1.4. We have decided to fund 6 Projects under the Supporting a just energy transition Innovation Challenge.

⁸ <https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges>

⁹ <https://apply-for-innovation-funding.service.gov.uk/competition/1296/overview/25e86b15-b625-4030-9ccc-6b9f7c698670>

1.5. In total, subject to the fulfilment of Project-specific conditions, we are awarding £659,007 of SIF Funding to gas and electricity SIF Projects under Supporting a just energy transition – Discovery Round 2 Innovation Challenge.

1.6. These funded Projects are:

- Hy-Fair
- Net Zero Terrace
- EV Respond
- VIVID – Vulnerability Identification Via Informative Data
- Guidelight
- SHIELD

Table 5: Summary of funded Projects - Innovation Challenge: supporting a just transition

Total number of Projects funded:	6
Projects funded led by a gas network:	1
Projects led by a gas network total funding:	£111,854
Projects funded led by an electricity network:	5
Projects led by an electricity network total funding:	£547,153
Total SIF Funding awarded (£):	£659,007
Total value of partner contributions (£):	£89,386

1.7. We have set out our assessment of individual Projects and our decisions in Annex 1.

2. Decision on Innovation Challenge: Preparing for a net zero power system

Section Summary

This chapter contains Ofgem’s decision on Applications in response to the ‘preparing for a net zero power system’ Innovation Challenge. We have decided to fund 9 Projects, with a total of £975,928 of SIF Funding being distributed. This consists of 2 Projects led by a gas network and 7 Projects led by an electricity network.

Update on the Innovation Challenge

2.1. This Innovation Challenge is focused on examining and utilising the opportunities across technologies, markets and standards as the power system transitions away from fossil fuel generation and towards greater renewable, nuclear and interconnector capacity.¹⁰

2.2. A total of 10 proposals were submitted to UKRI through the IFS portal in relation to this challenge for the Discovery Phase by the closing deadline of 11am on 23 November 2022.

2.3. Further information on the Preparing for a net zero power system Innovation Challenge for the Discovery Phase of round 2 can be found on the IFS portal.¹¹

Summary of our decisions

2.4. We have decided to fund 9 Projects under the Preparing for a net zero power system Innovation Challenge.

¹⁰ For more information on the Innovation Challenges, please see:

<https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges>

¹¹ <https://apply-for-innovation-funding.service.gov.uk/competition/1297/overview/2b5e7c7f-1643-4292-bfee-40a69c773dc3>

2.5. In total, subject to the fulfilment of Project-specific conditions, we are awarding £975,928 of SIF Funding to gas and electricity SIF Projects under the Preparing for a net zero power system –Discovery Round 2 Innovation Challenge.

2.6. These funded Projects are:

- Electrolyser Improvements driven by Waste Heat Recovery
- Hybrid Storage Systems for Site Safety and Efficiency
- INSIGHT
- Shifting Currents
- Powering Wales renewably
- Diversified flexible queue management
- Artificial forecasting
- Power Block
- Credo+

Table 6: Summary of funded Projects - Innovation Challenge: preparing for a net zero power system

Total number of Projects funded:	9
Projects funded led by a gas network:	2
Projects led by a gas network total funding:	£229,370
Projects funded led by an electricity network:	7
Projects led by an electricity network total funding:	£746,558
Total SIF Funding awarded (£):	£975,928
Total value of partner contributions (£):	£208,513

2.7. We have set out our assessment of individual Projects and our decisions in Annex 2.

3. Decision on Innovation Challenge: Improving energy system resilience and robustness

Section Summary

This chapter contains Ofgem’s decision on Applications in response to the ‘improving energy system resilience and robustness’ Innovation Challenge. We have decided to fund 21 Projects, with a total of £2,435,661 of SIF Funding being distributed. This consists of 6 Projects led by a gas network and 15 Projects led by an electricity network.

Update on the Innovation Challenge

3.1. This Innovation Challenge is focused on examining opportunities for incorporating energy system resilience and robustness through a multi-energy system design, and what areas of additional consideration, greater understanding or innovation are needed, such as in policies and codes or consumer behaviours at acceptance.¹²

3.2. A total of 30 proposals were submitted to UKRI through the IFS portal in relation to this challenge for the Discovery Phase by the closing deadline of 11am on 23 November 2022.

3.3. Further information on the Improving energy system resilience and robustness Innovation Challenge for the Discovery Phase of round 2 can be found on the IFS portal.¹³

Summary of our decisions

3.4. We have decided to fund 21 Projects under the Improving energy system resilience and robustness Innovation Challenge.

¹² For more information on the Innovation Challenges, please see:

<https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges>

¹³ <https://apply-for-innovation-funding.service.gov.uk/competition/1298/overview/d74f9064-f97b-42eb-a487-54ba881d825f>

3.5. In total, subject to the fulfilment of Project-specific conditions, we are awarding £2,435,661 of SIF Funding to gas and electricity SIF Projects under Improving energy system resilience and robustness – Discovery Round 2 Innovation Challenge.

3.6. These funded Projects are:

- Distribution Network Information Modelling (DNIM)
- Hydrogen Cost Reduction (HyCoRe)
- Supply Chain Resilience in the Transition
- NextGen Electrolysis – Wastewater to Green Hydrogen
- Looking-Glass
- Digital Inspector
- SIF Black Start Demonstrator from Offshore wind (SIF BLADE)
- REWIRE (Residential Whole System Integrated Resilience)
- SECURE – Securing the future delivery of all HVDC projects by de-risking the HVDC cable supply chain
- REACT (Rapid Evaluation Areal Connection Tool)
- Dynamic Networks
- D-Suite
- Scenarios for Extreme Events
- Resilient Customer Response
- Whole Energy System Resilience Vulnerability Assessment
- SF6 Whole Life Strategy
- SCOHL – SuperConductor Overhead Lines
- CommsConnect
- Trinity
- WARN (Weather Alerts and Risk Analysis for Network Operators)
- Connectrolyser

Table 7: Summary of funded Projects - Innovation Challenge: improving energy system resilience and robustness

Total number of Projects funded:	21
Projects funded led by a gas network:	6

Projects led by a gas network total funding:	£432,186
Projects funded led by an electricity network:	15
Projects led by an electricity network total funding:	£2,003,475
Total SIF Funding awarded (£):	£2,435,661
Total value of partner contributions (£):	£510,180

3.7. We have set out our assessment of individual Projects and our decisions in Annex 3.

4. Decision on Innovation Challenge: Accelerating decarbonisation of major energy demands

Section Summary

This chapter contains Ofgem's decision on Applications in response to the 'accelerating decarbonisation of major energy demands' Innovation Challenge. We have decided to fund 17 Projects, with a total of £2,031,382 of SIF Funding being distributed. This consists of 4 Projects led by a gas network and 13 Projects led by an electricity network.

Update on the Innovation Challenge

4.1. This Innovation Challenge is focused on examining the opportunities for a coordinated, sequenced and consumer focused approach to the incorporation of low carbon technologies, such as the decarbonisation of heat and incorporation of electric vehicles, to ensure that the benefits of the technologies working together are captured and deliver benefits for consumers.¹⁴

4.2. A total of 18 proposals were submitted to UKRI through the IFS portal in relation to this challenge for the Discovery Phase by the closing deadline of 11am on 23 November 2022.

4.3. Further information on the Accelerating decarbonisation of major energy Innovation Challenge for the Discovery Phase of round 2 can be found on the IFS portal.¹⁵

Summary of our decisions

4.4. We have decided to fund 17 Projects under the Accelerating decarbonisation of major energy demands Innovation Challenge.

¹⁴ For more information on the Innovation Challenges, please see:

<https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges>

¹⁵ <https://apply-for-innovation-funding.service.gov.uk/competition/1299/overview/4b89dc94-dfdb-48a1-bbdd-89f94dd15cab>

4.5. In total, subject to the fulfilment of Project-specific conditions, we are awarding £2,031,382 of SIF Funding to gas and electricity SIF Projects under the Accelerating decarbonisation of major energy demands – Discovery Round 2 Innovation Challenge.

4.6. These funded Projects are:

- Integrated hydrogen transport hubs
- Calfacto Latent Energy
- Net Zero Community Energy Hubs
- Carnot Gas Plant
- RetroMeter
- LEO-N
- Tyseley Env Enterprise
- Planning Regional Infrastructure in a Digital Environment (PRIDE)
- Inform
- Proportional Investment Of Networks in Energy Efficiency Retrofit (PIONEER)
- Indus
- Heatropolis
- Full Circle
- Lightspeed
- Park & Flex
- Heat Risers
- Watt Heat

Table 8 Summary of funded Projects - Innovation Challenge: accelerating decarbonisation of major energy demands

Total number of Projects funded:	17
Projects funded led by a gas network:	4
Projects led by a gas network total funding:	£392,905

Projects funded led by an electricity network:	13
Projects led by an electricity network total funding:	£1,638,477.00
Total SIF Funding awarded (£):	£2,031,382.00
Total value of partner contributions (£):	£561,996

4.7. We have set out our assessment of individual Projects and our decisions in Annex 4.

5. Next steps

Funding of selected Projects

5.1. At the same time as issuing this decision, Ofgem has issued SIF Project Directions in relation to each successful Project, explaining the terms that the Funding Party must comply with as a condition of receiving SIF Funding.

5.2. Ofgem will shortly issue a SIF Funding Direction to specify the amount of money to be recovered from network customers, through their network charges, to fund the Eligible SIF Projects.

5.3. Projects must start by 3 April 2023, in accordance with the SIF Governance Document, its SIF Project Direction and SIF Funding Direction.

Monitoring and evaluation of Projects

5.4. All Projects receiving SIF Funding will be subject to review and, for this purpose, be allocated a monitoring officer who will be employed by UKRI.

5.5. During Project delivery, Ofgem, with the assistance of information gathered by the monitoring officer, will monitor Projects. The monitoring officer must review each Project's progress against the scope, timeline, deliverables, milestones, and budget agreed in the SIF Project Direction. Monitoring must support the identification of potential problems, and the assessment of whether Projects have met the conditions attached to progression to the next Project Phase. For further details on Project monitoring, see chapter 6 of the SIF Governance Document.

Future phases of Innovation Challenge

5.6. A timeline detailing how funded Projects will move through the SIF process is provided in Table 9 below. Please note this is for guidance purposes and these dates may change as they get closer. Projects will be notified ahead of official dates.

Table 9: Timeline for Round 2 Innovation Challenge

Round 2 Project Phase	Date	Item
Discovery	5 September 2022	Discovery Phase Application open
Discovery	23 November 2022	Discovery Phase Application close
Discovery	03 April 2023	Discovery Phase begin
Discovery	30 June 2023	Discovery Phase end
Alpha	24 April 2023	Alpha Phase Application open
Alpha	5 July 2023	Alpha Phase Application close
Alpha	1 October 2023	Alpha Phase begin
Alpha	31 March 2024	Alpha Phase end

Annex 1: Application assessment - Innovation Challenge: Supporting a just energy transition

Chapter 1 of this document provides detail about the scope of the Innovation Challenge: Supporting a just energy transition, as well as summarising the total number of Projects funded and total value of SIF Funding awarded for the Discovery Phase of round 2.

This annex details our assessment and decisions on Applications submitted in response to that Innovation Challenge. Our assessment of each Project is set out within:

- Pages 40 - 43 set out our assessment of each gas Project that has been selected for funding, together with our decision.
- As all gas Projects submitted under this challenge were selected for funding, no gas Projects were redacted from the published document.
- Pages 44 – 63 set out our assessment of each electricity Project that has been selected for funding, together with our decision.
- Page 62 sets out our assessment of the electricity Project that has not been selected for funding, together with our decision. These tables are however redacted from our published document, in order to protect the IPR and innovations of unsuccessful projects.

Gas Projects selected for funding

Hy-Fair

Table 10: Project Costs

Cost type	Cost
Total eligible costs	£124,644
Total contribution	£12,790
Total SIF Funding requested	£111,854

Project description

Hy-Fair; leaving no one behind in the transition to green energy.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project be approved for SIF Funding. All three Expert Assessors considered the Project to have addressed the Innovation Challenge. The Project was considered to respond to the core aims of the Innovation Challenge by investigating novel and replicable methods for identification, support, and inclusion of vulnerable groups in the context of a conversion to hydrogen. The Project proposes looking ahead to the end user through ascertaining impacts of the transition hydrogen on consumers in vulnerable situations. Consumers and businesses in vulnerable situations form a sizeable proportion of the end user population, and considering and understanding them should contribute to a just energy transition.

One Expert Assessor noted the Application would've been strengthened by including more information on the technical approach, noting that aspects would rely on third parties and suppliers. It was also noted that the Application could have been strengthened by providing more information on why the Funding Party would not fund this Project outside of the SIF. A Project-specific condition was recommended for the Funding Party to provide justification for each of these by the completion of the Discovery Phase. On balance, the majority of the Expert Assessors recommended the Project be approved for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it examines the socio-technical precursors and conditions necessary to enable a just transition from natural gas to hydrogen for vulnerable customers and businesses. We agree with the Expert Assessors that this topic area is directly related to the Innovation Challenge. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree that this Project has identified potential to deliver a net benefit to gas consumers, thereby meeting this Eligibility Criteria. The Project, through investigating consumer needs, concerns and preferences, will work to develop solutions that enable greater social inclusion in the energy transition. We agree with the majority of the Expert Assessors that this represents the potential to deliver benefits in the form of health and welfare and potentially energy affordability for customers and business in vulnerable situations.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors that the Project involves network innovation. because it proposes examining what network operators can do to align social and technical changes required to facilitate a transition to the novel technology of hydrogen for those who are most susceptible of being left behind due to being consumers in vulnerable situations. We agree that this involves network innovation because it has the potential to help ensure that vulnerable consumer needs are understood and accounted for before the transition commences, and new technologies and innovations are rolled out. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets. This is because the Project focuses on access to clean energy for consumers in vulnerable situations, and this area is not competitive in nature. Additionally, the Project plan references the intention to use open procurement should new tools or methodologies be developed following the research. We note the potential for the Project's learnings to be shared across networks, equipment suppliers and others. Overall, we considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the majority of the Expert Assessors and consider the Project to be innovative and novel because it proposes investigating the circumstances and experiences of consumers and businesses in vulnerable situations in the context of a hydrogen network and service provision. We considered this as being capable of shaping future investment in customer services and support for low income groups ahead of any major transition, which we considered innovative and novel. We considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have a participation from a sufficient range of stakeholders for the works described in the Discovery Phase. The Project Partners are drawn from commercial, public and third-party sectors with a sub-contractor for technical-economic and social option assessments. The programme of work also proposes customer panels, therefore directly engaging with the consumers being targeted. The range of stakeholders cited should therefore be able to provide reasonable representative examples.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the majority of the Expert Assessors and consider this Project to be providing value for money and being costed competitively. We also note that the

Project's proposed solution could lead to avoiding network costs incurred through delay and failure to anticipate and plan for customer needs, as well as potentially more affordable access to clean energy.

We also noted that the costs are reasonable compared against industry norms and the Project specifications and for the deliverables set out. The 10% contribution requirement from the Project Partners was satisfied.

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.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria. The Project plan was considered to be sufficiently robust with Project Partners appropriately skilled for the tasks allocated to ensure the Project is delivered successfully. We also agree with the Expert Assessors that the timelines are realistic and should be deliverable within the time required. Overall, we considered the Project to have met this Eligibility Criteria and have confidence the Project will be capable of progressing in a timely manner.

Electricity Projects selected for funding

Net Zero Terrace

Table 11: Project Costs

Cost type	Cost
Total eligible costs	£151,966
Total contribution	£22,447
Total SIF Funding requested	£129,519

Project description

This Project will demonstrate how to decarbonise an entire terraced street using a Smart Local Energy System that is integrated with the network, optimised, affordable to consumers and easily replicable across GB.

Summary of Expert Assessors' feedback

The Expert Assessors recommend this Project for SIF Funding. The Project was considered to address a holistic energy and heat approach to developing technical and business model strategies to terraced housed customers, which was considered to involve network innovation while also being innovative and risky. The Project was also considered to have identified clear benefits for electricity consumers with bill reductions and CO2 emission reductions. The Project Partners were deemed to be suitable with a robust plan and methodology for delivery in the Discovery Phase.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider this Project to have addressed Innovation Challenge because it brings affordable net zero heat to a group of

potentially excluded consumers (those in terraced houses) and at times vulnerable households. This is aligned with one of the aims of the Innovation Challenge to support the decarbonisation of heat and mobility for rural, off gas grid, fuel poor and those consumer groups with reduced access to opportunities for decarbonisation. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have identified clear benefits for electricity consumers through bill reduction (cost savings) and CO2 emission savings (environmental benefits). We also agree with the comment from the Expert Assessors that the metrics used to track selected benefits covered a suitable range of quantitative and qualitative outputs, and that the Application would have been strengthened by including more detail on the value enabled by the community energy approach.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this Project to involve network innovation because it proposes exploring the split incentive and equality issues of energy access with mixed ownership terrace housing. We consider the split focus of the Project to involve network innovation as it represents the potential to solve an existing problem and create a business model for a combined local energy system.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to undermine the development of competitive markets because it is investigating decarbonisation options for terraced homes and opportunities for participation in flexibility markets.

The Project represents a potential route for communities to participate in flexibility services and revenues, based on integrated local energy systems and storage. This could also lead to new market opportunities for technology specialists such as heat pump suppliers, thereby creating market opportunities.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the majority of the Expert Assessors that the Project is innovative in its efforts to address heat decarbonisation for terraced houses specifically by applying a heat-focussed 'Smart Local Energy Systems' approach. We also noted that the Project involve a degree of risk because even though the technologies are mainstream, the Project will require buy-in from communities, something which has previously been considered challenging because of the different stakeholders involved and current barriers to widespread adoption. We considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have included participation from a sufficient range of stakeholders for the Discovery Phase. The Project includes technical and customer backgrounds, key for the focus area of the Project. We also noted that the Project is utilising resources from a BEIS North West Net Zero hub.

We also agree with the comment from the Expert Assessors that the Project's Application would have been strengthened by providing additional details on how the Project will engage with other stakeholders.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because it has reasonable costs for the deliverables set out. The Project states the modelling will be replicable which could offer wider benefits to consumers and the grid which provides confidence that the Project is providing value for money. We consider the Project to have met the Eligibility Criteria.

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.

We agree with the Expert Assessors that the Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner. This is because the Project plan includes clear details on responsibilities, planning and resources. We also considered the Project plan to provide a sufficient level of clear information which gives confidence that the Project would be able to progress in a timely manner.

EV Respond**Table 12: Project Costs**

Cost type	Cost
Total eligible costs	£134,872
Total contribution	£13,488
Total SIF Funding requested	£121,384

Project description

EV-Respond; safeguarding consumers using the power of electric vehicles.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended that this Project be approved for SIF Funding. This is because a majority of the Expert Assessors considered each of the Eligibility Criteria as met. One Expert Assessor did not recommend the Project for SIF Funding because they did not consider the Project to be providing sufficient benefits over current or other solutions to justify the cost and complexity for a Discovery Phase.

Overall, all the Expert Assessors considered the Project's proposed solution to offer the potential for new grid services with V2G technology to be innovative and valuable for vulnerable consumer groups. The Project Partners were deemed to be suitable and the Project was considered to have a robust plan for delivery. The Expert Assessors also considered the Project to involve network innovation through its focus on V2G technology to support the grid and vulnerable consumers, and also considered this to be innovative and novel.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider this Project to have addressed the Innovation Challenge because it is exploring novel solutions for vehicle to grid (V2G) technology to support vulnerable households through power outages. This can support the decarbonisation of heat and mobility consumer groups with reduced access to opportunities for decarbonisation, thereby focusing on one of the key areas of this Innovation Challenge.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have identified the potential to deliver a net benefit to electricity consumers through greater network efficiency which would result in cost savings and social benefits. We also agree with the comment from the Expert Assessors that the Project has the potential to result in safety and reliability benefits as consumers could have a more secure power connection, potentially resulting in households recovering more quickly from blackouts. The CO2 reductions and grid flexibility benefits were also considered to have a potential to deliver a strong net financial benefits to electricity consumers.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this Project to involve network innovation because it proposes exploring a novel solution to restoring power for the vulnerable in outages through examining the role of electric vehicle V2G technology to support the grid and vulnerable consumers during outages. We consider this to involve network innovation because it involves a novel solution to support the grid and vulnerable consumers during outages. We also agree with the comment from the Expert Assessors that more details on potential barriers the proposed solution faces would have strengthened the Application.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because it explores novel solutions to localised outage management and creates a new service that EV owners can

competitively offer to the grid. We considered this to have the potential to open new competitive opportunities and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel because it presents a new way to offer grid services and support to vulnerable groups during outages. V2G services have not been demonstrated for this use case before, and we agree with the Expert Assessors that this solution is novel and innovative.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project Partners to be sufficient for the Discovery Phase because they have strong experience and reputations in ensuring stakeholder feedback and consumer engagement as well grid and local authority expertise. We also agree with the comment from the Expert Assessors that the Application would have been strengthened with the inclusion of more technical expertise. However, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because it explores innovative business models and solutions to support vulnerable households using a strong consortium, which represents value for money over the existing solutions. While we agree with the Expert Assessors that the Projects costs provide value for money, we also agree with their note that stronger justification for one of the Project Partners higher than anticipated costs would have strengthened the Application. However, overall, we consider the Project to have met this Eligibility Criteria because the Project is costed appropriately for the deliverables set out and the Project's overall costs are aligned with industry norms.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the work package and deliverables have been clearly articulated and defined. We also noted that the timing of the work packages were considered reasonable. We considered the Project to have met this Eligibility Criteria.

VIVID – Vulnerability Identification Via Informative Data**Table 13: Project Costs**

Cost type	Cost
Total eligible costs	£104,954
Total contribution	£10,495
Total SIF Funding requested	£94,459

Project description

Project VIVID will develop new techniques to use smart meter and public data sets to identify which consumers would most benefit from timely, relevant and free offers of practical and financial support from their local authority, reputable charities and responsible energy companies.

Summary of Expert Assessors' feedback

The Expert Assessors considered the Project as having the potential to deliver value to vulnerable consumers and have therefore recommended it for SIF Funding. The Project was considered to be taking an innovative and novel approach to using smart meter data to identify and manage vulnerable consumers in a single replicable tool. If successful, the output may be utilised in other regions and could provide a way to systematically identify vulnerable groups of customers that could be best targeted for support.

The Project was considered as being innovative with good prospects for delivering solutions which could be implemented to support consumers in vulnerable situations. While the Project was considered to offer value for money and as being costed competitively, the Expert Assessors noted that a more equal balance between Project Partners would have strengthened the Application. The Expert Assessors also noted that the Project plan provided sufficient information and was well thought through for them to have confidence it will be capable of progressing but noted that risks could have been stronger.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it proposes making use of previously untapped smart energy in a way which enables systematic identification of vulnerable customers, to provide more targeted support in a way that could be transferred to other areas. We agree with the Expert Assessors that this is directly related to the Innovation Challenge's aim of progressing the understanding of vulnerable consumers and developing a strategy to support them.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the majority of the Expert Assessors and consider the Project to have clearly identified the potential to deliver benefits to both electricity consumers (as well as gas consumers) by better identifying customers experiencing vulnerable circumstances to provide more targeted support. We agree with the Expert Assessors that has the potential to deliver a social benefit. We also agree with the comment from the Expert Assessors that the additional benefits to be delivered to those consumers beyond existing processes and knowledge base could have been described in more detail. However, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this project to involve network innovation due to the focus of vulnerability experienced by energy network consumers, and the relation of their vulnerable circumstances to energy supply through the regulated energy networks. We also agree with the comment from the Expert Assessors that additional details in the description of the data activities to be undertaken or considered would have strengthened the Application.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because it is focused on delivering solutions to vulnerable consumers. We agree that this focus area and specifically the Project's proposed solution do not undermine the development of competitive markets because it can stimulate solutions to responding to vulnerable consumers and note that the learnings from the Project can be shared.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the majority of the Expert Assessors and consider this Project to be innovative and novel. We consider it innovative because the Project is proposing utilising previously untapped smart energy data to provide more targeted support to vulnerable consumers. Furthermore, the development of a vulnerability assessment tool which provides insights to consumers' situations beyond the simple classifications of vulnerability is novel.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a suitable range of stakeholders for the work described as part of the Discovery Phase. We note positively the participation from a network operator, data specialist business and social expertise entity whom understands aspects of consumer vulnerability. We agree that these stakeholders are suitable for the Discovery Phase activities set out and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the majority of the Expert Assessors and consider the costs of the Project against deliverables to be providing value for money and be costed competitively for the outputs described. We noted that the costs outlined by the Project Partners were reasonable for the Discovery Phase plans and deliverables set out. We also agree with the comment from one of the Expert Assessors that even though the costs are reasonable for the Discovery Phase, the balance

between the Project Partners could have been more equal. Overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the majority of the Expert Assessors and consider the Project to have met this Eligibility Criteria because the Project plan is well developed with clear roles for the Project Partners based on their experience. The Project team combines relevant expertise which should enable effective delivery. We also agree with the comment from the Expert Assessors that Project plan was well thought through but that the risks could have been stronger. However, overall, we consider the Project to have met this Eligibility Criteria.

Guidelight**Table 14: Project Costs**

Cost type	Cost
Total eligible costs	£140,720
Total contribution	£21,092
Total SIF Funding requested	£119,628

Project description

Low-income and vulnerable consumers receive grant funded LCTs through local authority retrofit schemes, but without supporting households to switch tariffs or using digital optimisation tools, retrofit schemes risk creating a socio-technical performance gap that this project will evidence and address through a range of capability-based interventions that are tailored to those in vulnerable circumstances.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors have recommended this Project for SIF Funding. The Project was considered by the Expert Assessors to potentially provide a solution to a knowledge gap in terms of low-income households' interaction with low carbon technologies and flexibility services, which was considered to be related to the Innovation Challenge and Eligibility Criteria 1. The Project was also considered to involve network innovation because it could help networks in decision making of network improvements. The Project was also considered to have the potential to deliver large net benefits to consumers and open up new markets for inclusive innovators. One Expert Assessor noted that the Application would have been strengthened by a clearer articulation of the current state of the industry and how the Project is providing an innovative solution to this. However, overall, the majority of the Expert Assessors recommended the Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree that the Project addressed the Innovation Challenge because it is focussing on low-income and vulnerable households to identify their needs to ultimately enhance their experience in using low carbon technologies and support them to be included in the provision of flexibility services. We considered this focus to be aligned with the Innovation Challenge's aim of narrowing the gap between vulnerable consumers and other consumer groups in their use and accessibility of decarbonisation solutions. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers through its focus on increasing the benefits of grant funded low carbon technologies for the vulnerable group of consumers. We agree with the Expert Assessors that the Project could support bill reductions directly, thereby resulting in a financial benefit, while also supporting social benefits such as mental wellbeing.

Eligibility Criterion 3: Projects must involve network innovation.

We agree that the Project involves network innovation because it is examining the effects of low carbon technology use on the network. We agree that the Project involves network innovation because it could help networks in decision making through its focus on improving low carbon technology asset performance and increasing consumer participation in demand side flexibility services. We agree with the Expert Assessors that this Project met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors do not consider the Project to undermine the development of competitive markets. We agree that it has the potential to support market development of low carbon technologies and increase participation opportunities for low income and vulnerable consumers. The output of the Project was also outlined as being an open access resource to all stakeholders, which we noted could support market development and expansion to include new consumer segments. We considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the majority of the Expert Assessors and consider the Project to be innovative in its aims of understanding low carbon technology engagement and use by vulnerable consumer groups. We consider its aim of identifying new supports services with mutual benefits to networks and consumers to be novel. We also agree with the comment from the Expert Assessors that greater detail on the novelty and innovation aspects of the Project would have strengthened the Application. Overall, however, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree that Project includes participation from a sufficient range of stakeholders because it involves a cross-sector consortia across the third sector, academia and local government. We consider this level of participation to be sufficient for the activities set out. We also note that the Project Partners and stakeholders hold the necessary skills for the tasks set out for the Discovery Phase.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We consider the Project to provide value for money and be costed competitively because the Projects costs are reasonable for the Discovery Phase activities and aligned with industry norms. We note that the Project Partner and Funding Party contribution is also over 10%, which we noted positively and consider to provide additional value for money as it provides confidence that the costs of the deliverables set out providing value for money. We also note that the Project aims

to build off of existing expertise and intellectual property developed via other research and innovation programme, providing value for money.

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.

We agree that the Project has a robust methodology because each stage of the work plan was clearly outlined, responsibilities of the main Project Partners are detailed against work packages, and the Project Partners are appropriately skilled for the work set out. We also note that the delivery timelines in the context of the workplan are realistic for the timing of the Discovery Phase. The Project consortium was also considered to be experienced against the different capabilities needed in the activities.

SHIELD**Table 15: Project Costs**

Cost type	Cost
Total eligible costs	£91,237
Total contribution	£9,074
Total SIF Funding requested	£82,163

Project description

SHIELD aims to test and deploy new approaches and business models for installing low carbon technologies (LCTs) such as photovoltaic (PV), other renewable generation, storage, and electric vehicles (EVs) in conjunction with low carbon heating solutions to make the decarbonisation of heat and energy affordable and accessible to vulnerable consumers.

Summary of Expert Assessors' feedback

The Expert Assessors considered this Project to have met all the Eligibility Criteria and therefore recommend this Project for SIF Funding. The Expert Assessors considered this Project to be innovative in its approach of trying to unlock a range of solutions suitable for vulnerable end-users. In addition, this Project could also provide potential for flexibility services for community revenues and improved network efficiencies. The Project Partners were deemed to be suitable with a robust plan and methodology of delivery and it was noted that the Project costs were competitive and the Project represents potential to deliver a net benefit for consumers. It was noted that the Application could have more clearly articulated the route to market of the services. Overall, all the Expert Assessors recommended the Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to reduce emissions in homes and particularly those in vulnerable groups. The Project proposes identifying a range of low carbon solutions which can be utilised to support these groups and aims to improve cross-sector coordination and to engage more vulnerable households in clean energy transition and grid flexibility services. We agree that focus is directly related to the Innovation Challenge's aims of significantly narrowing the gap between consumers in terms of ease, accessibility and cost effectiveness of decarbonisation solutions relevant to energy networks.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have clearly identified potential to deliver a net benefit to electricity consumers and particularly to those on low incomes and in vulnerable households. The Project has identified both financial and social benefits as it proposes an innovative method to decarbonise heat through the use of recovered heat from distributed data centres, alongside more distributed local carbon energy technologies. We also note the potential benefits for all network users through cost savings on network operation and reinforcement, and through wider participation in flexibility services to the grid.

We also agree with the comment from the Expert Assessors that consideration for other opportunities aside from Thermify's systems and PV would have strengthened the Application. On the whole however, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this Project to involve network innovation as it proposes investigating improved management of low carbon technologies connected to the distribution network and prospects for local system

balancing through use of storage and aggregation services. We note that this could result in innovation in cross sector collaboration and could contribute to innovation for energy network resilience. We agree with the Expert Assessors that this involves network innovation because it could contribute to greater energy network resilience and allows new approaches to be tested at scale and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because it is investigating a route to opening up markets for decarbonised heat services to more vulnerable, low income households and social housing providers. We note the potential for it to also provide a route for communities to participate in flexibility services and revenues, which could lead to new market opportunities for technology specialists. We therefore consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel because it proposes investigating new questions about how to decarbonise heat at scale, and affordably, particularly for low income and vulnerable groups. We considered this approach to be novel. We also considered the Project to be innovative in its aim to develop clean heat provisions through heat recovery and integrated local systems and to embed low carbon technologies in flexibility services. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase because it includes engagement across commercial, public and third sectors, with each partner appropriately skilled to manage their assigned tasks. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We considered the Project to be delivering value for money and be costed competitively because it has an appropriately costed budget for the length of the Project and the activities set out. The Project is costed competitively and is delivering value for money because of the relatively wide range of technologies and potential applications addressed, which could lead to opportunities for replication at larger scales. We also agree with the Expert Assessors that the funding requested by Project Partners was appropriate for the activities set out as well as the breakdown of funding between Project Partners.

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.

We agree with the Expert Assessors and consider this Eligibility Criteria to have been met as the Project has a robust methodology, which gives confidence that the Project will be capable of progressing in a timely manner. We considered the work plan to be well structured, with a clear division of labour between Project Partners, and deadlines for completion at each stage. The risk register is clear about the main risks and mitigation and we note that each Project Partner contributes distinctive skills and experience to the Project. We consider the Project to have met this Eligibility Criteria.

Electricity Projects not selected for funding

[REDACTED]

Annex 2: Application assessment - Innovation Challenge: Preparing for a net zero power system

Chapter 2 of this document provides detail about the scope of the Innovation Challenge: preparing for a net zero power system, as well as summarising the total number of Projects funded and total value of SIF Funding awarded for the Discovery Phase of round 2.

This annex details our assessment and decisions on Applications submitted in response to that Innovation Challenge. Our assessment of each Project is set out within:

- Pages 66 - 73 set out our assessment of each gas Project that has been selected for funding, together with our decision.
- Page 74 sets out our assessment of the gas Project that has not been selected for funding, together with our decision. These tables are however redacted from our published document, in order to protect the IPR and innovations of unsuccessful projects.
- Pages 75 – 102 set out our assessment of each electricity Project that has been selected for funding, together with our decision.
- As all electricity Projects submitted under this challenge were selected for funding, no electricity Projects were redacted from the published document.

Gas Projects selected for funding**Electrolyser Improvements driven by Waste Heat Recovery****Table 16: Project Costs**

Cost type	Cost
Total eligible costs	£110,349
Total contribution	£14,635
Total SIF Funding requested	£95,714

Project description

The Electrolyser Improvements driven by Waste Heat Recovery Project looks to demonstrate efficiency improvements in hydrogen production through the use of waste heat produced in the transportation of network gases.

Summary of Expert Assessors' feedback

The Expert Assessors recommend this Project for SIF Funding because it was considered to be highly innovative and has identified a compelling opportunity to reduce energy waste and provide a more efficient service for customers, which could result in a net benefit for consumers. The Project has also assembled a strong consortium for delivering this Project and for scale up and represents the potential to deliver a net benefit to gas consumers. The Expert Assessors also considered the Project to be costed competitively and represent value for money.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to increase the efficiency of hydrogen production and has the potential to reduce the carbon footprint of the national transmission stations. We agree that these proposed activities are aligned

with the Innovation Challenge as the Project proposes a novel way to reliably support low stability systems through the use of waste heat for hydrogen production. This could make the production of green hydrogen less reliant on renewable energy sources, thereby providing reliable support for low stability systems. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to gas consumers primarily through improving the efficiency of hydrogen production to be used in turbines to power gas compressor stations. We agree that the Application articulates the benefit of recovering heat that otherwise would be lost from the gas turbines to increase the efficiency of hydrogen production. The improved efficiency represents a reduction in the costs of operation, which would then be passed on to gas consumers and we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it will support the operation of gas and turbines that power the compressor stations in the national transmission system (NTS) using 100% hydrogen, rather than natural gas. We also agree with the comment from the Expert Assessors that this involves network innovation as it will be required for a future hydrogen-based NTS and will need to be investigated as part of the transition to net zero and a net zero power system. We also note that the Project will allow a relatively low technology readiness level method to progress and develop with the network, thereby resulting network innovation.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it aims to support the development of relatively new technologies for which there are alternative suppliers in the market. We agree that

through this activity, the Project supports the development of a new market for this method of electrolysis which will ultimately help grow the hydrogen economy.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project be innovative, novel and risky. It proposes the use of waste heat in combination with solid oxide electrolyzers, which is not a mature technology and uses an energy source (waste heat from compressor turbines) that has not been previously extensively explored. We agree that this is innovative, novel and risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We consider the Project Partners and wider consortium to have participation from a suitable range of stakeholders for the Discovery Phase. We agree with the Expert Assessors that this is because the Project includes network providers, both SME and large industrial organisation and research capability provided via Cardiff university. The expertise included covers a range of disciplines from technical assessments to commercial benefit case development.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be costed competitively and to provide value for money. We note that the costs, the balance of resources and the combined value of resources are all suitable for the activities proposed for the Discovery Phase. We also agree that the costs of the Project Partners are in line with industry norms for the activities proposed. We also agree that the contribution put forward by the Funding Party and Project Partner is aligned with the requirements set out in the SIF Governance Document.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that the Project will be capable of progressing in a timely manner. We also agree with the comment from the Expert Assessors

that the tasks, deliverables and milestones are sufficiently detailed and aligned to the Project objectives. We also note that the gantt chart has sufficient detail, and that the project risks are well articulated.

Hybrid Storage Systems for site safety and efficiency**Table 17: Project Costs**

Cost type	Cost
Total eligible costs	£150,507
Total contribution	£16,851
Total SIF Funding requested	£133,656

Project description

The Hybrid Storage System will enable safe and efficient storage of hydrogen on operational sites using an optimised approach to hydrogen's physical state against production and demand profiles.

Summary of Expert Assessors' feedback

This Project was recommended for funding by the majority of the Expert Assessors. Two Expert Assessors cited the breadth of experience and complimentary expertise of the Project team and stakeholders involved as reasons why this Project was innovative and fit for SIF Funding. Two Expert Assessors also considered the Project's focus on hybrid compressed gas and solid state hydrogen storage as both interesting and innovative. The potential benefits surrounding future supply of low carbon gas were also cited.

The Project clearly communicated a budget and timescale which gave the majority of the Expert Assessors confidence that the Project is delivering value for money and is costed competitively, and would be able to deliver as described. However, as a few of the Eligibility Criteria were decided by majority, a few Project-specific conditions have been recommended for the Project. Additionally, an Expert Assessor noted that the proposal would benefit from additional detail on the outcome of prior work that would support the concept, and quantified targets or benefits.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it seeks to demonstrate a secure supply of hydrogen to the gas grid as an enabler for progressing to the net zero by 2050 decarbonisation challenge for the UK. We agree with the Expert Assessors and consider this Project to be directly aligned with one of the aims of the Innovation Challenge, which is to develop novel ways to reliable support low stability systems. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the majority of the Expert Assessors and consider this Project to have identified the potential to deliver a net benefit to gas consumers through lower bills and increased network reliability. We also agree with the comment from the Expert Assessors that the scale up of this technology has not yet been shown to be cost effective and that wider analysis of counter factual options outside the Project should be considered by the Project. However, we consider the Project in its Application to have clearly identified a potential to deliver a net benefit to gas consumers. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the majority of the Expert Assessors and consider this Project to involve network innovation. We note that the Project involves network innovation because it is examining how to overcome the current limitations of solid-state hydrogen storage by combining it with compressed gas storage. This involves network innovation because it could increase the efficiency and effectiveness of gas storage in the transition to net zero. We also agree with the comment from the Expert Assessors that the Project's focus involves network innovation because it is examining the use of a novel hydrogen storage means which could provide a

hydrogen system methodology to cover all eventualities. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the majority of the Expert Assessors and consider this Project to not undermine the development of competitive markets. This is because the Project deals with assessing a method of storage which will not adversely impact price or availability, and other solutions will remain available. We therefore agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the majority of the Expert Assessors and consider the Project innovative and risky because its focus requires a guaranteed supply of hydrogen and there has been limited research to date into hybrid storage solutions for energy, in comparison to other industries such as transport and aerospace. We agree that this constitutes both an innovative and risky design because of its new focus and we therefore consider this Eligibility Criteria to have been met.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the activities described in the Discovery Phase. We note that the Project involves network licensees, an RTO, a university and a system supplier. The Project partners were considered to be equipped with sufficient expertise and complimentary skills concerning the technologies involved and the activities set out. Overall, we agree with the Expert Assessors and consider this Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to provide value for money and be costed competitively. We note that the Project proposes multiple deliverables from an extensive scope of work, with contribution requirements being

met. We also agree that the Project costs are appropriate for the proposed scope and the deliverables set out. We therefore consider the Project to have met this Eligibility Criteria.

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.

We agree with the majority of the Expert Assessors and consider the Project to meet this Eligibility Criteria as it has a sufficiently robust methodology and gives confidence that it will be capable of progressing in a timely manner. We agree that the Project plan was clearly communicated and realistic, and the risk register captured a wide range of potential risks. We agree that the Project clearly thought through its Project plan and risk register and consider the Project to have met this Eligibility Criteria.

Gas Projects not selected for funding
[REDACTED] - Digitalising Hydrogen Network Conversion

Electricity Projects selected for funding

INSIGHT (Innovative Network Status Intelligence Gathered by Holistic use of Telemetry and Simulation)

Table 18: Project Costs

Cost type	Cost
Total eligible costs	£98,245
Total contribution	£14,730
Total SIF Funding requested	£83,515

Project description

INSIGHT seeks to understand, classify, predict and define actions to manage potential new forms of electrical network instability (e.g. voltage/ frequency/ power oscillations) on a Net Zero system.

Summary of Expert Assessors' feedback

The Expert Assessors have recommended this Project for SIF Funding as it has identified a clear technical challenge that will require novel and risky approaches to be developed for the delivery of a net zero power system. The Expert Assessors considered the Project Partners as suitable and highly capable for the scope of work. The Expert Assessors recognised that the likelihood and severity of system oscillations is likely to increase as more non-conventional forms of generation (wind, solar, battery electric storage) and high voltage direct current is connected to the electricity grid. Developing testing and implementing solutions to energy system design through grid code and standard was considered by the Expert Assessors as offering good prospects for delivering both carbon and cost savings to electricity consumers.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the 'preparing for a net zero power system' Innovation Challenge through its proposal to investigate novel ways to manage power system stability brought about by the proliferation of power electronics and intermittent renewables on the system. We agree that this addresses the Innovation Challenge because the Project's proposed solution demonstrates a facility that supports preparation for a net zero power system.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

The Project seeks to establish cost effective mechanisms for management of electrical network instability including voltage, frequency, and power oscillations. This was considered by the Expert Assessors to present the potential to deliver a net benefit via cost savings to electricity consumers and could additionally enable faster penetration of power electronics based renewable technologies, which are crucial for the achievement of net zero and delivering carbon savings. We agree with the Expert Assessors and consider the Project has met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this Project to involve network innovation because it plans to develop a proactive means of identifying and categorising new and existing types of system oscillations on the network and then defining actions to mitigate against them. We consider this as being a clear part of the electricity networks responsibilities in delivering a net zero power system and the Project was therefore considered to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We do not consider the Project to be undermining the development of competitive markets because it is delivering learning which can be made available and utilised by all interested parties. Learnings will be developed and applied to grid codes and energy supply standards which are publicly accessible. Any prospective tenders in later Project Phases will be competitively procured. As a result of this, we agree

with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it plans to develop a new approach and tools that proactively identify and classifies oscillation risks. This will inform planning, operation, and mitigation strategies. We agree that the Project has provided reasonable justification for why existing tools do not provide an adequate solution to the problem of oscillations due to power electronics based renewables. The proposal explains clearly how the Project extends the knowledge gained from previous projects or other work streams currently in progress, making it novel.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of Project Partners because they are representative of the key stakeholders for this particular problem i.e. the system operator, a transmission network company and academia. Although the benefits extend to others not in the Project, the consortium was considered to have enough of a mixture of skills and contributions to solve the Problem in the Discovery Phase.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project's costs and the costs of Project Partners to provide value for money and to be costed competitively because the estimated cost to the consumer of doing nothing is more than the expected cost of completing the Project, both in terms of cost and environmental impacts. We also recognise that the Funding Party is contributing additional costs in addition to the minimum mandatory requirement which provides confidence that the Project's deliverables are providing value for money. We also note that the breakdown of costs are reasonable between the Project Partners and the costs of individual Project Partners provide confidence that the Project is costed competitively. We consider this Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project plan to be sufficiently detailed and robust to meet this Eligibility Criteria. We also agree with the comment from the Expert Assessors and have confidence that the Project will be capable of progressing in a timely manner because the work packages are clearly defined with the responsible Project Partner for each work package having sufficient experience and skills in delivering the work package. In addition, the milestones, the Project plan and risk register aligned and are complimentary to each other.

Shifting Currents

Table 19: Project Costs

Cost type	Cost
Total eligible costs	£151,798
Total contribution	£52,758
Total SIF Funding requested	£99,040

Project description

Shifting Currents will investigate how flexibility can be embedded in the operations of the drinking and wastewater networks of water utilities, to deliver whole systems benefits to customers of reduced carbon intensity of water and electricity networks and cost-effective management of electrical capacity.

Summary of Expert Assessors' feedback

The Expert Assessors considered this Project to have met all the Eligibly Criteria and therefore recommend this Project for SIF Funding because the solution has ambition in its innovation as it stretches across company and sector boundaries requiring both technical and commercial development. The Project identifies a significant source of flexibility through the water sector and this Project could be a strong pathfinder for other flexible demands and to deliver a potential net benefit to electricity users. There is a clear approach to delivery and a strong case for SIF Funding has been submitted.

The Expert Assessors considered this Project to have a well thought through work plan, with adequate resources and expertise from a wide range of Project Partners.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it takes a whole system approach that creates a novel method to manage demand and identifies a national source of flexibility from the water sector which could be a strong pathfinder for other flexible demand. We also agree with the comment from the Expert Assessors and consider this Project to align well with the decarbonisation of the energy sector. We consider this Project to have met the Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have met this Eligibility Criteria as it has a clearly identified potential to deliver a net benefit to electricity customers and also more widely to the whole system as the Project explores novel ways to reduce their usage through the interoperability of electricity and water networks. We agree that the Project also represents the potential for consumers to benefit from stacked financial benefits from multiple sectors benefiting from this Project.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation through its focus on novel technical and commercial arrangements between DNOs and water companies, which could enable more efficient network operation and potentially avoid reinforcements which may occur under business as usual practices. We also agree with the comment from the Expert Assessors that this Project could potentially bring forward significant flexibility opportunities, which could be used to unlock additional network capacity for future renewable generation and reduce peak time demand.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

The Expert Assessors did not consider this Project to undermine competitive markets. The facilitation of more sources of demand side flexibility should strengthen existing and future markets. The Project has also articulated that it is

aware of potential regulatory and competition risks and its intention to engage the two regulators to ensure there is no detriment to the competition in this area which we noted favourably.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it proposes new and innovative technical and commercial arrangements between DNOs and water companies as well as establishing novel improved commercial flexibility frameworks. None of these are currently used as standard industry practice, which we consider to be risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project Partners to be sufficient for the Project as the range of stakeholders bring applicable and relevant skills and knowledge. Where there are particular skills required e.g. knowledge of the water sector, multiple water utilities have been included. The Project also intends to engage with the regulators and consumer groups to ensure wide project impact. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider this Project to be costed competitively and to provide value for money as the Project Partners are providing significant in-kind contributions which provides confidence that the Project's deliverables are providing value for money. We also noted that the potential scale of demand flexibility and the replicability and demand side decarbonisation benefits that the Project is examining represents additional opportunities for value for money. We also agree with the Expert Assessors that the benchmarking of costs from the Project Partners are appropriate for the activities set out.

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.

The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner. We agree with the Expert Assessors that the Project presented a clear structure of its activities and milestones, and clearly demonstrated the risks and responsibilities of different parties. We also agree with the Expert Assessors that there is sufficient expertise among Project Partners and the allocated resources are appropriate for the Project scope.

Powering Wales Renewably

Table 20: Project Costs

Cost type	Cost
Total eligible costs	£155,791
Total contribution	£20,300
Total SIF Funding requested	£135,491

Project description

Using the whole electricity system approach, local Government and network operators will collaboratively identify innovation priorities to progress Welsh decarbonisation plans and increase renewable electricity hosting capacity whilst delivering net benefits to Wales' citizens and their communities.

Summary of Expert Assessors' feedback

The Expert Assessors considered this to be a strong Project proposal as it met all of the Eligibility Criteria and takes an innovative approach to whole energy systems thinking at scale. While each Expert Assessor considered the Project to have met each of the Eligibility Criteria, it was noted by some that the Application would have been strengthened with additional detail around how the output might align with or be integrated into other digital twin tools. This includes with Open Energy Systems models being used by network participants across the country. However, this not seen as risk to the Project in the Discovery Phase and therefore the Expert Assessors have recommended it for SIF Funding.

The Expert Assessors also identified a clear similarity with other digital twin initiatives, including the Virtual Energy System programme. These have been referenced in the proposal as initiatives to align and coordinate with. However, the Project could more clearly articulate the boundaries of outputs and responsibilities between those Projects. A Project-specific condition has been added recommended for the Funding Party to provide a summary of how other digital twin projects are informing this Project by the completion of the Discovery Phase. but this was not considered by the Expert Assessors to be significant risk in the Discovery Phase. Benefits realisation, project management and risks were all sufficiently described. This Project was viewed considered by the Expert Assessors as having potential to

deliver considerable value to the Welsh government energy strategy and ultimately benefit consumers.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met the Innovation Challenge because it focusses on a whole power system approach (transmission, distribution and system operation) to facilitating key aspects needed to deliver net zero, using Wales as an at-scale geographic location for primary investigation.

We agree with the Expert Assessors and note that the Project addresses the Innovation Challenge because it proposes establishing Wales's first whole electricity system model, enabling Wales to reach its full Renewable Energy (RE) potential and reduce carbon emissions. This first-of-its-kind system in Wales represents the potential for access to novel system support by enabling flexibility coordination across the whole electricity system, reducing RE curtailment and facilitating constraint management. This focus has the potential to further develop the understanding of a net zero power system through its integration of additional connections, increased outputs, and access to low carbon technologies for flexibility services.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified potential to deliver a net benefit to electricity consumers through the delivery of cost and emissions benefits by facilitating swifter deployment of renewables and other connections for low carbon technologies across Wales. We agree that this

represents the potential to reduce costs and emissions for electricity consumers. We also agree that the Project could lead to opportunities to deliver multiple benefits including cost savings, carbon reductions, and increasing the deployment of new products, processes, and services.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider Project to involve network innovation because it is focusing on developing a digital twin of the whole electricity system across both transmission and distribution networks. This has the potential to facilitate improvements in network services provision to solve traditional network development challenges, and involves network innovation.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because the Project's approach could enable a more holistic and collaborative approach to the energy market. We agree and note that this Project has the potential to stimulate a more competitive market, thereby benefiting consumers. Furthermore, the Project's emphasis on the use and dissemination of open data, and the sharing of outputs will create opportunities for a wide range of stakeholders including developers and generators.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

The Project was considered innovative and risky by the Expert Assessors because it seeks to develop a first of its kinds innovative digital twin of a whole country's energy network, including transmission and distribution. We agree that this is novel in the scale of its ambition, which is beyond similar projects. We also agree that the coordination across multiple stakeholders introduces risk to the Project.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project Partners to be sufficient for the Project and work described for the Discovery Phase. The group includes transmission and distribution companies, together with a company with

the capability to develop the technology and the support of the devolved government, which represents all the major relevant stakeholders. A key part of the project is also to seek the views of all stakeholders that may be impacted by final outcomes.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and to be costed competitively through its appropriate cost allocation across the partners, use of SME expert resources, and contributions in-kind from the Funding Party. We also note that a more quantitative market information in support of costings could have would have strengthened the value for money case further. We agree and consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The Project plan is agile and clearly sets out work packages, with costs, leads and objectives for each. The risk register covers the key risks that could be expected, with appropriate mitigation measures. The approach to project management and risk management is sound and should ensure a well-run project.

Diversified Flexible Queue Management

Table 21: Project Costs

Cost type	Cost
Total eligible costs	£162,910
Total contribution	£15,759
Total SIF Funding requested	£147,151

Project description

Accelerating decarbonisation by the considering diversity and flexibility of already connected large assets and those within the connection queue.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended the Project for funding due to the relevance of the issue it seeks to address. The potential benefit of accelerating the connection of renewables and flexible resources is well aligned to the transition of the power system to net zero. One Expert Assessor noted while the issue and challenge area are important and worthy of research, the Project structure of the Discovery Phase could have included greater detail and could be more suited to progressing through business as usual funding first. However, the majority of the Expert Assessors recommended this Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is proposing a solution that could make it easier for renewables and flexibility providers to connect to the electricity grid with lesser delays and at lower reinforcement costs. We agree that this is aligned with the 'preparing for a net zero power system' Innovation Challenge as the Project

has the potential to make better use of network capacity to enable these technologies to connect, thus supporting supply and demand matching, which addresses the Innovation Challenge.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers. We note that the Project has identified this benefit via faster connection times and reducing/deferring reinforcements by better utilising diversity and flexibility, ultimately leading to lower bills and a financial benefit for consumers. We also note that the proposed solution could enable the electricity system to be operated at lower costs through improved use of connected resources.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation as it is proposing to improve the connection arrangement process to allow more renewables and flexible resources to connect to the grid faster. We agree that this is a key aspect of the transition to net zero and that the Project involves improved use of data to determine the ability to connect and make use of existing and future network, a key part of a future open digitalised energy system which involves network innovation beyond general practices.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets. The Project will enable more efficient connection to the network through increased data transparency, which has the potential to enhance the competition in the providing of flexibility services via an easier access to the grid. This could also increase the opportunity for competitive or commercial services to develop. We agree with the Expert Assessors and consider the Project to meet this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel because it explores a new way of dealing with customer connection requests through better use of data, which is innovative because it goes beyond business as usual practice and could unlock benefits across all Distribution Network Operators (DNOs). We also agree that the approach of data analysis is risky because it may not reveal additional benefits, as well as the approach to queue management being novel.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of Project Partners to carry out the activities for the Discovery Phase, including networks and an organisation with expertise in data. We also agree that greater detail could have been provided on other key stakeholders and the Project's engagement plan with them in the Discovery Phase. However, overall we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be providing value for money as network and Project Partners are requesting appropriate funding for the activities set out, which provides confidence that the Project's deliverables are providing value for money. We also note that the breakdown and allocation of work between the Project Partners is costed competitively compared to industry norms. We agree with the Expert Assessors that the Project would have been strengthened if more details were provided on why the Project is not using a grid supply point with known challenges. However, overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project's proposed method and the work plan to be well thought through and robust enough to deliver the proposed scope of work set out. We also agree that greater details on the

methodology would have strengthened the Application, but overall, we have confidence that the Project will be capable of progressing in a timely manner.

Artificial Forecasting

Table 22: Project Costs

Cost type	Cost
Total eligible costs	£159,500
Total contribution	£32,778
Total SIF Funding requested	£126,722

Project description

Harnessing the power of machine learning and readily available data to develop the dynamic load forecasts and predictive modelling approaches that an active low carbon DSO network requires.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors consider the Project to be reasonably compelling. As low carbon technologies connect to low voltage systems, there is the need to extend existing load forecasting methods for improved accuracy and to support flexible dispatch; the subject of the project therefore merits investigation. The need and benefits case has been identified reasonably well, although at high level.

The Expert Assessors noted that the Application could have more clearly articulated around what is meant by the application of AI methods (which covers a very wide range of approaches). The details of the Artificial Intelligence technique (such as Neural Network, Genetic Algorithm, Expert Systems, Fuzzy Logic etc) to be investigated were not mentioned specifically, which could have an impact on costs and value of the solution.

Overall, the Expert Assessors considered it to be directly related to the Innovation Challenge and considered Eligibility Criteria 1 to have been met because it is examining opportunities to augment short-term load forecasting capability, which could improve the use of flexibility in the transition to net zero. This was considered by the Expert Assessors to be network innovation and to have clearly identify a potential to deliver a net benefit to electricity consumers through a reduction in reinforcement costs and improved network efficiency. The Expert

Assessors considered the Project to have participation from a sufficient range of stakeholders for the Discovery Phase. The Expert Assessors also considered the Project to have been costed competitively and to be providing value for money.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met the Innovation Challenge because it proposes investigating using innovative Artificial Intelligence (AI) approaches to augment short-term load forecasting capability. This has the potential to further develop flexibility options rather than reinforcement options, which could increase the speed and lower the cost of decarbonisation. We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is directly related to the aims and objectives of Innovation Challenge.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified potential to deliver a net benefit to electricity consumers. These were identified as net benefits via the delivery of reliable network, with the prospect of emission benefits by improving the connections and utilisation of low carbon technologies connecting to the network through improved load forecast capabilities. Whilst we agree that the benefits could have been more clearly articulated, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it seeks to take a new AI-driven approach to forecasting across

the network and beyond existing forecasting methods. We agree that this forecasting approach involves network innovation because it has the potential to support more efficient and effective network planning. Additionally, the Project's focus on training and testing machine learning algorithms to produce reliable load forecasts at EHV-to-HV transformation points, suitable for the shorter-term forecasting DSO systems will require, was considered to involve network innovation.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to not undermine the development of competitive markets, particularly as a range of DNOs are involved which should facilitate the development of common approaches and delivery across different regional geographies. We agree that the Project has good prospects of stimulating a more competitive market by enhancing the assessment of energy network load requirements and making this information available to others. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and to have the potential to use Artificial Intelligence techniques in a novel way to solve real-world problems. We also note and agree that greater details on the innovation in the use of AI techniques would have strengthened the Application. Overall, however, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for delivery of the Discovery Phase. Notably because the Project has the core users of the proposed product (two distribution network operators, covering multiple licensees, and the technology developer). We also note that there is a description of a wider-range of stakeholders who will be engaged through the Project which will help to realise the

full potential of load forecasting for customers of the networks, in addition to the core network functions themselves. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to deliver value for money with the costs savings described. We also consider the Project to be costed competitively and appropriately for the works described in the Discovery Phase, with an appropriate split between the Project Partners for the activities described. This provides confidence that the Project is providing value for money and is costed competitively compared to industry norms. We also agree that greater assessment of the counterfactual approaches would have strengthened the Application. However, overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project plan is clearly set out with three work packages defined with costs, leads and objectives. Milestones are also clearly identified and costed. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Power Block**Table 23: Project Costs**

Cost type	Cost
Total eligible costs	£51,755
Total contribution	£9,400
Total SIF Funding requested	£42,355

Project description

Commercial buildings are currently an untapped source of energy flexibility for the networks. This project looks to unlock the value and increased participation of commercial buildings in the flexibility market.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors agreed this Project be recommended for SIF Funding. The Expert Assessors considered the Project to be examining a new innovative area for distribution network operators and the integration of commercial demand side response into energy markets. The Expert Assessors overall considered the Project to be an innovative and novel project which is costed competitively and offers value for money. The Expert Assessors also considered the Project plan to be clearly articulated and had confidence that the Project would be able to deliver in the Discovery Phase.

However, it was noted by one Expert Assessor that the Application could have been more clearly articulated, specifically around the benefits for consumers and where the innovations within the Project are.

Overall, the majority of the Expert Assessors considered the Project to have met the Eligibility Criteria and have therefore recommended the Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it aims to develop a new flexibility service which is tailored to commercial buildings. To date, commercial premises have not been used for flexibility and we note the innovation in the proposed solution. We also agree that Project has the potential to support a decarbonisation solution without the need for significant reinforcement. We agree with the Expert Assessors and consider this Project to have addressed the Innovation Challenge through its focus on accessing grid or system support from novel supply and demand side sources.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified potential to deliver a net benefit to electricity consumers in lower system costs through reduced network investment and then some financial savings to targeted commercial buildings. We also agree with the comment from the Expert Assessors that the benefits case would have been strengthened with more ambitious benefits and greater detail on how this Project would provide additionality over current projects and/or services or how the associated benefits from the creation of new services could have the potential to deliver a net benefit to electricity consumers. However, overall we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We consider the Project to involve network innovation because it explores novel interaction between DNOs and commercial customers through flexibility arrangements. We agree with the Expert Assessors that this involves network innovation because it is examining ways commercial flexibility can be unlocked as well as the creation of new flexibility markets, which were considered to be key aspects of a net zero power system. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it proposes supporting the development and integration of commercial demand side response into the market. We agree that this represents a potential to stimulate competitive markets. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider this Project to be innovative and novel because the Project proposes a potential solution or path forward to integrating demand side response into regulatory grid management processes. We also agree with the comment from the Expert Assessors that greater details on the areas of innovation and risk would have strengthened the Application. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because it includes two Distribution Network Operators (DNOs) and a commercial partner who are energy efficiency-focused organisations. We agree with the Expert Assessors that these participants and the participation from there is sufficient for the Discovery Phase activities set out.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to provide value for money because the overall project costs are appropriate and reasonable for the Discovery Phase activities set out. We also note the potential benefits of the Project's proposed solution outweigh the costs of the Project. We also agree with the comment from the Expert Assessors that the costs for the Project Partners are appropriate for the Discovery Phase activities. This provides confidence that the Project is providing value for money is costed competitively.

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.

We agree with the Expert Assessors and consider the Project methodology to be sufficiently robust and to provide confidence that the Project will be capable of progressing in a timely manner because it provides a high-level breakdown of the work package structure and risks for the Discovery Phase. We agree with the comment from the Expert Assessors that the outputs could been provided in greater detail but still consider the Project to have met this Eligibility Criteria.

CRDo+ Climate Resilience Demonstrator (extension to new climate risks)**Table 24: Project Costs**

Cost type	Cost
Total eligible costs	£143,586
Total contribution	£31,302
Total SIF Funding requested	£112,284

Project description

CRDo+ (Climate Resilience Demonstrator - extension to new climate risks) is a development on the original CRDo decision support tool by incorporating newly developed models of DNO asset failure risk under extreme weather conditions. This will enhance the ability of network operators and wider connected asset owners to build systemic climate resilience.

Summary of Expert Assessors' feedback

The Expert Assessors considered this Project to have met all Eligibility Criteria and therefore recommend for funding as it will enable exploration of new and credible climate change conditions on existing network assets and enable decision making for appropriately scoped design requirements for new assets and materials and operational approaches. The consortium formation is well suited to deliver the project, and the benefits of the solution could be significant. Willingness to share the outcomes with other utilities like water was welcomed by the Expert Assessors and demonstrated positive whole systems thinking. The Project was also considered to be costed competitively, to provide value for money and a clearly identified potential to deliver a net benefits to electricity consumers. The Expert Assessors also have confidence that the Project will be capable of progressing and delivering its planned outputs in the Discovery Phase.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider this Project to have addressed the Innovation Challenge and therefore meet this Eligibility Criteria because it proposes supporting network asset management and decision making for the replacement of assets to enhance resilience in extreme weather conditions. We agree that the Project aligns with the Innovation Challenge's focus on supporting system integration, including digital interfaces, through the development a digital twin of the energy system to explore how infrastructure interdependencies impact system resilience, and how data sharing can improve overall system resilience.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a clear benefit for electricity consumers through lower capital and operating costs due to better resource allocation during extreme weather events. The ability to predict asset upgrades more accurately taking into account weather changes has the potential to deliver savings and greater reliability to the network. More efficient operations could lead to reduced system costs for consumers, demonstrating a financial benefit. In addition, there are clear social benefits associated with consumers receiving better warning of extreme weather events.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation which builds on learnings from previous projects. This Project proposes developing a tool and modelling scenarios which assess network asset failure risk against new climate risks. The implementation of the risk models in the CReDo digital twin would provide better predictability, robustness, and quantification of uncertainties under a variety of extreme weather conditions. This involves network innovation because it's an approach to network management which would allow for more efficient planning, use and operation of the network ahead of and during extreme weather conditions, which would benefit consumers.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider this Project to have met this Eligibility Criteria because the Project has stated that it will make the solution developed by the Project available to other utilities to make their own implementation decisions. We agree that the Project demonstrates a potential to improve the overall resilience of the system, which the market is a part of, and represents opportunities for the development of competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree that the Project is innovative and novel as it is exploring the impact of a changing climate which is not in scope for current or traditional network planning and operating approaches. Furthermore, the Project will be developed to a digital twin across all infrastructure networks to model impacts which is ambitious and risky, and requires innovation. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders because the expertise is suitable for developing the modelling functionality and the Project Partners demonstrate knowledge in climate characteristics and asset management. We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be appropriately costed and to provide value for money with competitive rates quoted. We agree with the comment from the Expert Assessors that the Project is providing value for money because the Project Partners are providing above the required 10% compulsory contribution, which provides confidence that the Project's deliverables are providing value for money and are costed competitively. In addition, the

Project has communicated its intention for the tool to be made open source, creating an additional opportunity for the Project to provide value for money.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because there is a well-defined and coherent Project plan in place. The Project is also bringing an already established partnership format and is focusing on an area which is an extension of the scope of existing piece of work which mitigates some development risks and risks of establishing a new partnership. We agree that the Project has provided a robust Project plan with clearly defined work packages, highlighting key objectives, success criteria and costs.

Annex 3: Application assessment - Innovation Challenge: Improving energy system resilience and robustness

Chapter 3 of this document provides detail about the scope of the Innovation Challenge: improving energy system resilience and robustness, as well as summarising the total number of Projects funded and total value of SIF Funding awarded for the Discovery Phase of round 2.

This annex details our assessment and decisions on Applications submitted in response to that Innovation Challenge. Our assessment of each Project is set out within:

- Pages 104 - 127 set out our assessment of each gas Project that has been selected for funding, together with our decision.
- Page 128 sets out our assessment of the gas Projects that have not been selected for funding, together with our decision. These tables are however redacted from our published document, in order to protect the IPR and innovations of unsuccessful projects.
- Pages 129 – 188 set out our assessment of each electricity Project that has been selected for funding, together with our decision.
- Page 189 sets out our assessment of the electricity Projects that have not been selected for funding, together with our decision. These tables are however redacted from our published document, in order to protect the IPR and innovations of unsuccessful projects.

Gas Projects selected for funding

Distribution Network Information Modelling (DNIM)

Table 25: Project Costs

Cost type	Cost
Total eligible costs	£15,236
Total contribution	£15,234
Total SIF Funding requested	£2

Project description

DNIM aims to support the energy transition with the development of a cost effective and non-disruptive robotic system that will internally map and analyse the entire gas distribution network in a cost-effective manner.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended the Project for SIF Funding in their overall assessment. Accurate asset mapping was considered to be important to the decarbonisation of the gas supply system and it was considered that the proposed solution would help to enable gas supply system decarbonisation.

One Expert Assessor noted that the Application could have been more detailed in the Project plan, and another commented that further evidence on the potential of the innovation to help keep customers' bills down and assist in increasing network robustness as potential areas of focus for the Discovery Phase.

All Expert Assessors noted the Project provides value for money as the Project has requested a nominal amount of SIF Funding for this Discovery Phase. It was noted that the details around the robot the Project proposes developing and its capabilities could have been more clearly described.

Overall, this Application was recommended for SIF Funding by the majority of the Expert Assessors.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to increase the accuracy of location data and inspections of buried gas infrastructure using remote monitoring and machine learning approaches, thereby harnessing the potential to enable a resilient and robust transition to a hydrogen economy and the transition to net zero. We agree that this addresses the Innovation Challenge's aim of improving the understanding of robustness in future energy system configurations and to develop solutions to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified a potential to deliver a net benefit to gas consumers. The Project aims to optimise the maintenance of gas distribution pipelines through increasing accuracy of pipeline location and inspection data. We agree that this represents the potential to help assist the transition to green gases in a safe and cost effective manner for the consumer and was considered to represent a potential to increase network efficiency thereby delivering financial benefits.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it proposes to use technology which is not currently readily available within the sector. This focus and the Project's aim of using it to provide a digitized approach to mapping and analysis of network assets was considered to involve network innovation because it was not an approach which is currently used.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to not be undermining the development of competitive markets. It was noted that the technology the Project proposes using will be shared with other gas distribution networks and that the technology is too underdeveloped for it to be undermining the development of competitive markets. Additionally, we agree with the Expert Assessors that the development of the technology in the Project does not represent any potential to undermine the development of competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky because it is attempting to digitise gas distribution pipelines. We consider it innovative because it would involve the development of visual pattern matching to categorise various elements of pipelines and their status. We also noted that the innovation and risks were associated with the Project's use of a tetherless robot, with the Expert Assessors noting the challenging operating environment presented plenty of obstacles and risks.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase because it includes industrial Project Partners with capability and experience in supply chains. We also agree that two delivery partners are sufficient for this Project because the Funding Party has control over the pipelines which will require inspection, and the Project Partner can use its experience to develop the robot for inspecting the pipelines.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be providing value for money and to be costed effectively. We consider this to be because the Project as a whole is requesting minimal SIF Funding, with the Discovery Phase being funded primarily by the Funding Party and the Project Partner. We also note as part of this the large contribution from the two partners.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which is capable of progressing in a timely manner. We considered there to be a high level of detail provided in the Application, and the level of resource allocated was considered sufficient for the activities set out. We consider the Project to have met this Eligibility Criteria.

Hydrogen Cost Reduction (HyCoRe)**Table 26: Project Costs**

Cost type	Cost
Total eligible costs	£171,675
Total contribution	£34,413
Total SIF Funding requested	£137,262

Project description

This HyCoRe Discovery project seeks to acquire new knowledge regarding the optimal placement of electrolyzers and energy storage devices, which will be applied in subsequent phases to develop a software tool to allow offshore wind/hydrogen project developers to optimise the planning process, reducing costs associated with offshore-wind/hydrogen production and its integration into the gas network, and accelerating the net-zero transition.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. The Project was considered to be highly innovative and risky, and represent the potential to deliver novel benefits to the energy system, which would deliver financial benefits to energy consumers as a whole. The Project was considered to have addressed the Innovation Challenge, to involve network innovation and gave the Expert Assessors confidence that it will be capable of progressing in a timely manner. It was noted that additional Project Partners or stakeholders would have strengthened the Application.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because of the Project's focus on understanding the trade-offs between electricity and hydrogen production for offshore wind farms and the impact this has on the gas and electricity networks. We agree that this directly aligns with the Innovation Challenge's aim of incorporating resilience and robustness as key and measurable considerations into future multi-energy system design. We consider the Project to have addressed the Innovation Challenge as a result and therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to represent the potential to deliver a net benefit to gas consumers via financial benefits through a reduction of network investments and greater network efficiency, which would result in less network charges for consumers. We also agree that the Project could represent benefits for other energy system users as well, such as electricity consumers.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it focuses on whole-system decision making, where offshore energy can be best utilized and placed. We agree the Project's focus on considering hydrogen and offshore wind energy involves network innovation because it examines the efficient combination of different energy sources. We also note and agree with the comment from the Expert Assessors that the network innovation could have been more clearly outlined in the Application. Overall, however, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets. Like the Expert Assessors,

we do not consider the Project to represent the potential introduce market distortion or to undermine the development of competitive markets. This is because the Project's focus is on utilizing offshore energy to provide a methodology where alternative options can be compared, helping support competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky. This is because the Project's scope on better understanding and utilizing offshore energy wind generation to improve on energy system resilience and robustness. We agree and consider this focus to be innovative and risky, with the methodology the Project proposes developing as novel.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria. We note the benefits that such a range of stakeholders in the Project bring in the execution of the Project. We also note and agree with the comment from the Expert Assessors that the Application would have been strengthened by the involvement of an academic partner to support the learning and whole system optimisation, as well as participation from an electricity transmission licensee. However, like the Expert Assessors, we consider the Project to have included participation from a sufficient range of stakeholders for the activities set out and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria because the Project is using labour costs which are aligned with industry norms, which provides confidence that the Project is costed competitively. The benefits communicated represent both network and wider energy system benefits, which provides confidence that the Project is providing value for money. Like the Expert Assessors, we also noted that greater details for achieving the proposed benefits would have strengthened the Application. However, overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology because the Project plan and approach for the Discovery Phase are credible and deliverable. We also agree with the comment from the Expert Assessors that this provides confidence that the Project would be capable of progressing in a timely manner. Additionally, we also agree with the Expert Assessors that the Project could have more provided greater evidence on the justification of comparable efficiencies being possible from different energy carriers and their transmission between source and end user. However, overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Supply Chain Resilience in the Transition

Table 27: Project Costs

Cost type	Cost
Total eligible costs	£86,547
Total contribution	£8,654
Total SIF Funding requested	£77,893

Project description

Without a structured plan or strategy for procurement, gas networks could be at risk of very long lead times for key assets during a significant change to the industry such as the energy transition.

Summary of Expert Assessors' feedback

The Project was considered by the majority of Expert Assessors as suitable for SIF Funding. The Project is aimed at using novel techniques to better understand the supply chain required to deliver a hydrogen transmission network in the UK. Whilst Expert Assessors raised some concerns to the degree of innovation in the outputs themselves, it is acknowledged that the Project will help understand the available technology in supply chains for gas transmission and will therefore also surface needs for further innovation, or developing additional robustness to supply chain interruptions to meet network enhancement project objectives.

It was also noted that greater details on the engagement plans would have strengthened the Application. Furthermore, the Project does appear to be primarily focussed on improving the procurement practice of a single organisation (National Grid Gas Transmission), whereas SIF Projects should develop innovations which can be applied across a significant cohort of the energy networks sector.

It will be challenging to quantify the benefits of improved supply chain resilience delivered through the solutions, but greater detail of those benefits will be needed for future progression.

Overall, the majority of the Expert Assessors recommended the Project for SIF Funding and considered the Project to have met the Eligibility Criteria.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria because it has the potential to support the roll out of new infrastructure, namely hydrogen transmission assets. We agree that this directly addresses one of the core aims of the energy system resilience and robustness Innovation Challenge which is to improve the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria because there is the potential for the Project to deliver a net benefit in its procurement approach, which would result in a financial gain. We also agree with the comment from the Expert Assessors that the Project could have more clearly outlined how the benefits would be reflected to consumers. We agree that the lower procurement costs will result in lower network operation costs. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is aimed at developing a supply chain of innovative products and services required to develop a hydrogen transmission network from a methane network. We agree that this involves network innovation because it is focused on

the transition to net zero for networks beyond simply transitioning to a hydrogen network. Whilst greater details on the Project's approach would have strengthened the Application, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because the Project will not prevent other networks from using the supply chains identified or from using suppliers not identified by the Project. We note that the Project has the potential to promote competition by opening the supply chain for smaller and UK based suppliers.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We consider the Project to be innovative and risky. The Project's examination of applying new approaches to novel risks presented by the overall hydrogen transition, is considered to require innovation from top-to-bottom of the supply chain. We agree with the comment from the Expert Assessors that the Project could have more clearly articulated where the innovation was occurring beyond a business-as-usual transition, but consider the Project's focus on the supply chain innovation to be innovative and risky enough for the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders because the Project plan involves engaging with potential companies in the supply chain for interview/consultation and the Project is considering involvement of major companies. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the majority of the Expert Assessors and consider the Project to be providing value for money and as being costed competitively because the breakdown of costs between Project Partners are sufficiently justified, aligned with industry norms, and appropriate for the activities set out. We also agree with the comment from the Expert Assessors that the supply chain will be a large proportion of hydrogen transmission investment costs and a project that optimises the supply chain was considered to likely have positive financial benefits.

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.

We agree that the Project has a reasonably robust methodology which gives confidence that it will be capable of progressing in a timely manner because it has a clearly defined aim, clear division of responsibilities, and clearly defined objectives. We also agree with the comment from the Expert Assessors that the Application would have been strengthened if greater details were provided on the inclusion of activities which would describe how wider network benefits could be derived and how outputs would be embedded into new innovative business practices. However, overall we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

NextGen Electrolysis – Wastewater to Green Hydrogen**Table 28: Project Costs**

Cost type	Cost
Total eligible costs	£90,470
Total contribution	£9,048
Total SIF Funding requested	£81,422

Project description

Next Gen Electrolysis -- Wastewater to Green Hydrogen will look to reduce the cost of hydrogen production by tackling the real-world operational constraints of electrolytic production, specifically the need for high purity water, by utilising less pure/wastewater sources to reduce demand on pure mains water, passing cost savings to end consumers.

Summary of Expert Assessors' feedback

The majority of Expert Assessors have recommended this Project for SIF Funding and consider the Project to have innovative aspects and the potential for benefit to the overall energy system and wider national infrastructures. It was also considered by the majority to demonstrate value for money and be costed competitively, and to be investigating a novel, risky and innovative area.

It was noted that the Project could have more clearly articulated the innovation in regards to the gas network. Furthermore the Expert Assessor noted that benefits can be extracted for the consumer, but the Application could have provided more details on these as well.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria because the Project has the potential to deliver resilience and resilience benefits in terms of feedstock requirements for hydrogen production and also has the potential for additional resilience and robustness from waste water treatment. We agree that this aligns directly with one of the Innovation Challenge's aims, which is to improve the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified a potential to deliver a net benefit to electricity consumers through the potential to increase utilisation of electricity from wind generation by reducing constraints on its output at times of grid system stress. We agree that this represents the potential to deliver carbon reductions arising from natural gas usage, financial benefits from reduced system costs and an increased efficiency through the ability to deliver green hydrogen in remote areas.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this Project to involve network innovation because there is a potential for green hydrogen use in the gas grid, and noted the intention of the project to use generated green hydrogen locally for industry in rural settings. This involves network innovation because it could reduce the carbon content of the gas being transmitted in the network. Whilst gas network injection has the potential to be a use case and is mentioned briefly under route-to-market, we note that the innovation proposed by the Project could have been closely tied to the gas network in the Project. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it has the potential support the development of hydrogen markets, in particular improving the potential to produce and supply green hydrogen in areas remote from significant clean water infrastructure. We agree that this can promote the development of competitive markets, and the Project was therefore considered to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it proposes exploring next generation hydrogen production processes, using bio-ionic electrolytes, which we agree is an innovative and risky energy technology because it is not yet fully developed for network use. We also note the comment from one Expert Assessor that the Project's use of waste water was novel. We therefore agree with the Expert Assessors and consider the Project to be innovative.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase activities set out. The Project includes an experienced technology provider and several energy network partners, which are being led by gas but also with electricity network involvement. We also agree with the comment from the Expert Assessors that the Project would have been strengthened by having a more even split of effort in the Project

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and as being costed competitively because the day rates proposed by the Project Partner are appropriate for the activities described and compared to industry norms, and the potential benefits outweigh the costs of the Project. We note that the value for money proposition from the Project could be improved if the

Application more clearly outlined the area of network innovation and corresponding benefits for consumers. Overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the methodology is appropriate and appears to have considerable thought for the Discovery Phase. We also agree that the plans for the Discovery Phase were clearly communicated, including the Project plan and risks.

Looking-Glass

Table 29: Project Costs

Cost type	Cost
Total eligible costs	£118,557
Total contribution	£30,550
Total SIF Funding requested	£88,007

Project description

Project Looking-Glass will provide real-time assessment of Network Operators' resilience and robustness through big data analysis of infrastructure and security data, ensuring the Networks are secure during the Net Zero transition.

Summary of Expert Assessors' feedback

All Expert Assessors considered the Project to have met each of the Eligibility Criteria and all recommended this Project for SIF Funding.

The Application was considered to have addressed the Innovation Challenge as the cybersecurity challenge identified was considered to be directly related to the aims of the Innovation Challenge which involves network innovation because it goes beyond existing practice. It was also noted that the proposed solution is applicable across energy networks, and the application suggests that it can lead improvements to best practice across energy and other essential services, which the Expert Assessors did not consider to undermine the development of competitive markets.

The Expert Assessors considered the Project to have participants from a sufficient range of stakeholders, but noted that other perspectives from outside the energy sector would have strengthened the Application. The Expert Assessors also had confidence that the Project would be capable of progressing in a timely manner because of the clearly articulated plan, milestones and risks. The Expert Assessors considered the Project to provide value for money and as being costed competitively because of the value the Project represents and the contributions from the Project Partners.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed this Innovation Challenge because it proposes exploring cybersecurity threats and where a lack of resilience and robustness could create very large impacts. We agree that this proposed approach has the potential to lead best practice in this area for network operators. We consider this to have addressed the Innovation Challenge as it directly relates to one of its aims, which is improve the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified the potential to deliver a net benefit to gas consumers through enhancements of existing practices which could meaningfully reduce the risk of supply outages. We agree with the Expert Assessors and consider this to represent a potential reduction in the costs of providing cybersecurity, which represents a potential financial benefit. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider this Project to involve network innovation because it proposes exploring a core activity of gas network operators, the provision of cybersecurity and the management of digital and physical assets in ways that protects them against external threats. The Application describes the current state of practice across the industry, notes limitations of the current approach, and proposes novel ways of improving the current approach. This approach was considered to involve network innovation because it is examining an

advancement of current network practices and preparation. It was noted that the Application would have benefited from including greater detail on the types of threats and their potential impacts on the gas network. Overall, however, we agree with the Expert Assessors and consider this Project to have met the Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets as the project has potential to develop and share best practice across the energy network sector, which could lead to a clearer definition of the services required. We agree that this could represent the potential to increase competition by providing improved information to the marketplace and what services or tools will be required. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it is proposing developing new ways to measure and manage cyber and digital security. The Project's focus on cyber security and protection from external threats is innovative to the energy networks sector and other providers of essential services as it goes beyond existing practices. It was also noted that the risk for the Project is in the challenges and risks of developing for this type of universal assessment approach for multiple users.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because the Project Partners include a lead network operator, a cybersecurity technology provider, and the Ministry of Defence (MoD) as a non-funded advisor. The Discovery Phase activities set out are also aligned with their areas of expertise. We also agree with the comment from the Expert Assessors that another service

provider, such as another energy network or other critical network infrastructure provider, would have strengthened the Application. However, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and as being costed competitively because it provides a well-designed, competitively costed, and clear Project plan. There is also strong in-kind support from the Project Partners which further improved the value for money of the Project. It was also noted that the contribution of funding by one of the Project Partners also lowers the effective day rates, which provides value for money against the Project's overall costs for the activities set out. Overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence it will be capable of progressing in a timely manner because the Project plan and milestones are communicated clearly, and the risk register is both clearly bespoke to the Project and has detail of mitigation actions. We note and agree with the comment from the Expert Assessors that greater details in the technical methodology would have strengthened the Application. Overall, we agree with the Expert Assessors and consider this Project to have met this Eligibility Criteria.

Digital Inspector

Table 30: Project Costs

Cost type	Cost
Total eligible costs	£53,241
Total contribution	£5,641
Total SIF Funding requested	£47,600

Project description

Digital Inspector will be a complete ecosystem for monitoring and managing welding being undertaken across multiple different locations by connecting procedure approval and welder approval databases to real time weld data acquisition. The project is designed to be scalable to include NDT digital data and connect to other SaaS systems such as Building Information Management (BIM) software. Successful delivery of the overall project concept will improve energy system resilience and robustness through early identification of fabrication issues and non-conformances, reducing down time and requirements for later stage rework.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. The proposed Project's focus area was considered to have genuine potential to increase productivity by bringing better or best practice on welding processes and supply chain management of welds and components to the gas sector.

All Expert Assessors recognised that weld quality management and construction risk is a genuine issue and considered the Project to represent network innovation, and be an innovative and risky approach. The Expert Assessors noted that the Project Partners and stakeholders were suitable for the Discovery Phase activities set out and considered the Project to represent value for money. The Expert Assessors also noted that the Project was costed competitively for the activities set out. The Expert Assessors did not consider the Project to represent the potential to undermine the development of competitive markets. It was however noted that the Project could have provided additional details in its planning for the Discovery Phase, which would have strengthened the Application.

Overall, the majority of the Expert Assessors recommended this Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has potential to increase the system robustness and traceability of faults through greater digitisation of the welding process and welds of gas system pipeline assets. We considered this to be directly aligned with one of the Innovation Challenge's main aims, which is to improve the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified potential to deliver a net benefit to gas consumers through increasing productivity and traceability in the gas sector. This was considered to represent a net benefit to gas consumers through lowering costs on a regulated asset, thereby resulting in a financial benefit. We also agree with the comment from the Expert Assessors that greater details on how the Project's focus area would lead to lower costs for consumers would have strengthened the Application. However, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it is examining how to increase the productivity and digitisation of welds and components to the gas sector. We agree that this

digitalisation focus has the potential to improve the resiliency of the gas network through activities which go beyond business-as-usual activities and therefore demonstrated network innovation. We therefore considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets. By focusing on innovating part of the supply chain the Project represents the potential to enhance competition in the welding market. We also agree with the comment from the Expert Assessors that there could have been a clearer description and narrative around how the outputs from the Project would be communicated to the wider industry, and how to best ensure that competition was maintained. Overall, however, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria. Although focused on utilising relatively mature technological approaches, we agree that the Project is innovative and risky because it proposes pulling together different elements of the required digital quality assurance and record keeping in the energy network sector. This is innovative because it would represent a change in current operational approaches and could support the sharing of best practices and risky because it is not an approach which has been tried at this level before. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase because the Project Partners include the gas networks, industrial partners with capability in supply chains, industry bodies and SME organisations. We agree that

these are the necessary Project Partners and stakeholders for the proposed activities in the Discovery Phase. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money. The Project's potential benefits outweigh the costs of the Project, which provides confidence that the Project provides value for money. We agree that the requested SIF Funding is proportionate and appropriate for the activities set out for the Discovery Phase, and we consider the split between Project Partners to be appropriate. We agree with the Expert Assessors that this represents value for money and as the Project being costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because the Project plan is logically presented, addresses the major risks and giving good confidence of the Project progressing in a timely manner. We noted that core team have expertise in the proposed innovation area, which gave them confidence that it will be capable of progressing in a timely manner. We also noted that the Application would have been strengthened with greater detail on the timelines and activities specifically. However, overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Gas Projects not selected for funding

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Electricity Projects selected for funding**SIF Black start demonstrator from offshore wind (SIF BLADE)****Table 31: Project Costs**

Cost type	Cost
Total eligible costs	£271,303
Total contribution	£122,077
Total SIF Funding requested	£149,226

Project description

Enabling a low-cost net zero GB electricity network that is robust and secure, by investigating and demonstrating how novel technology can allow offshore wind farms to restore the onshore grid following a black out.

Summary of Expert Assessors' feedback

All Expert Assessors have agreed that this Project meets all Eligibility Criteria and all recommend this Project for SIF Funding. The Application was considered relevant to the Innovation Challenge as it identifies a resilience problem for the electricity network which will grow as fossil fuel assets are retired. The Project was considered to represent the potential to deliver cost savings to consumers as well as carbon emission savings. The Project was considered to build on existing and previous innovation projects. It was considered to be well structured and to bring together a strong group of relevant stakeholders. The Project was also considered good value for money and to be costed competitively.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is investigating the use of large offshore wind

generation network assets in restarting the electricity network following a black out event. We agree that this addresses the aims of the Innovation Challenge, one of which is to develop innovations using novel multi-energy system configurations for increasing system resiliency. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a clear benefit for electricity consumers through exploring a cost-effective means to provide black start capability for the electricity transmission network in the future without the availability of wide-scale fossil fuelled assets. Restarting the grid quickly in the event of an outage was considered to represent a clearly identified potential to deliver a net benefit to electricity consumers through increased system resiliency. It was also noted that the Project's focus is one which presents the opportunity to minimise costs by using already deployed rather than specialist assets (e.g. fossil fuel plant and stores kept solely for this purpose). These were considered to represent the potential to reduce costs to consumers as well as carbon emissions.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because the network is not currently capable of using and supporting offshore wind assets for black starts. The Project involves network innovation in its approach of exploring physical assets (connectors, transformers, generating equipment) in supporting black starts and in operational procedures, and potential business models and market trading opportunities.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it proposes creating a competitive market for generators to provide black start services, which could

result in a new tool to enable the transmission networks to be managed in the event of faults. Various providers should be able to compete to provide the required services to the network operator, which could result in the creation or stimulation of additional competitive markets. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider this Project to build on previous innovation projects in its proposed focus on black start capability from offshore wind. We agree that this is both risky and innovative as there is limited research to date which has been on this and there are currently no clear market signals to stimulate its development.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have sufficient participation from the Project Partners for the activities set out because it includes key stakeholders involved in the proposed Problem, such as a network operator, the centre for HVDC, academia, and a wide range of offshore wind operators via the Offshore Wind Association. We agree with the Expert Assessors and consider this Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and to be costed competitively because the Project Partners' costs are appropriate against industry norms and the activities set out for the Discovery Phase are appropriately cost. This gives confidence that the Project is providing value for money and the Project Partner costs are costed competitively. We also noted that the Project represents a strong potential payback for consumers which we consider to demonstrate value for money.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that the Project will be capable of progressing in a timely manner because the Project was considered to have clearly articulated its plans for the Discovery Phase. We also noted the Project plan, risk register and roles and responsibilities are sufficiently robust and were clearly outlined and articulated. We agree with the Expert Assessors and consider this Project to have met this Eligibility Criteria.

REWIRE (Residential Whole System Integrated Resilience)**Table 32: Project Costs**

Cost type	Cost
Total eligible costs	£186,389
Total contribution	£36,442
Total SIF Funding requested	£149,947

Project description

REWIRE will develop innovative domestic level multi-energy systems that exploit cross-vector technologies to provide flexible demand profiles, thereby alleviating network constraints, maintaining security of supply and improving overall energy system resilience.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors have recommended the Project for SIF Funding. The Expert Assessors considered the proposed solutions to be an interesting area worthy of exploration which aligned with the Innovation Challenge. The Expert Assessors considered the Project to be ambitious, innovative, novel and risky in nature, representing clear network innovation. The Project was considered to have a clear value proposition and costs were considered reasonable for the Discovery Phase activities. A significant proportion of costs are allocated to a subcontract consultancy, though it is noticed that a reasonably strong contribution is made to the Project by the consortium.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge through utilisation of multi-energy systems to improve overall energy system resilience, whilst aiming to deliver benefits aligned with the objectives of the SIF programme. We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge as it focuses on one of the aims of the Innovation Challenge, which is to incorporate resilience and robustness as into future multi-energy system design.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have a clearly identified potential to deliver a net benefit to electricity consumers as the Project's focus on balancing the overall energy system could lead to cost savings, increased system resilience, and carbon savings. We agree with the comment from the Expert Assessors that this has the potential to deliver a net benefit to electricity consumers through financial benefits and environmental benefits. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it proposes exploring the opportunity of behind the meter integration with domestic hydrogen storage, domestic vector conversion technology and utilisation of existing low pressure gas assets to better support energy network integration. This involves network innovation because the interaction and incorporation of these different elements represents advancements on existing network coordination approaches. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets. We also agree with the comment from the Expert Assessors the comment that the Project represents the

potential to increase competition in the areas of heating and energy storage through the Project's focus on multi-vector integration in the energy system. As a result, we consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it proposes the linkage of the gas and electricity sectors in a manner which could help in providing whole network resilience. We also agree with the comment from the Expert Assessors that there are significant technical and regulatory barriers associated with using this solution in domestic properties and how it interfaces with network operation, which introduces risk into the Project. We agree and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to involve a sufficient range of stakeholders for the Project. We agree that the Funding Party represents the electricity distribution side of the Project and has the experience of building, operating and maintaining the distribution network. The academic Project Partner has specific expertise in multi-energy systems, which was noted favourably and considered sufficient for the Discovery Phase activities.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money because the longer term benefit of domestic sector-linked use of hydrogen (if determined to be technically and economically viable) was considered to be high and greater than the costs of the Project. The costs are also broadly appropriate for the proposed outputs of the Discovery Phase Project and the activities set out. We consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a reasonably well thought through plan and a sufficiently robust methodology. The methodology is sufficiently thorough to give confidence that it will be capable of progressing in a timely manner and the Project plan is sufficiently clear, with clear milestones and deliverables. The breakdown of work packages and lead for each work package is clearly defined, with a good risk management plan. We consider the Project to have met this Eligibility Criteria.

SECURE – Securing the future delivery of all HVDC projects by de-risking the HVDC cable supply chain**Table 33: Project Costs**

Cost type	Cost
Total eligible costs	£164,344
Total contribution	£16,435
Total SIF Funding requested	£147,909

Project description

SECURE - Securing the future delivery of all HVDC cable projects by de-risking the HVDC supply chain.

Summary of Expert Assessors' feedback

The Project aims to address the supply chain challenges associated with the expected growth of HVDC networks. Monitoring of the supply chain should provide greater transparency of bottlenecks and how to deal with them. The Expert Assessors considered this approach to involve network innovation, whilst also being innovative and risky. Overall, the Project was recommended by all the Expert Assessors for SIF Funding as it was considered to have the potential to provide important information on the barriers to gaining digital supply chain information and to build innovative arrangements around the digitalisation of supply chains.

The Expert Assessors considered the Project planning to be strong and had confidence it will be capable to progressing. They considered there to be clear sector wide benefits that could be achieved through the proposal but considered that greater justification of how value for money is delivered directly to the consumer through these interventions would have strengthened the Application. The cooperative approach of bringing together expertise across digital, power systems and supply chain management was considered to be important aspect by the Expert Assessors.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has potential to deliver a more resilient and robust energy system through securing a more efficient and effective supply of HVDC cables. We also agree with the comment from the Expert Assessors that future delays or challenges in the HVDC cable supply chain could cause increased infrastructure costs as well as challenges to the flexibility of the energy system, and that this was a sufficient and realistic risk. We agree that the Project met this Eligibility Criteria because it aligns directly with one of the aims of the Innovation Challenge, which is to improve understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a clear benefit for electricity consumers through the development of a digital supply chain hub focused on de-risking the procurement and delivery of HVDC cables. Enabling effective supply of critical assets to areas of demand was considered to have the potential to reduce costs (financial benefit) and carbon emissions (environmental benefit). We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to gas or electricity consumers.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is examining how to develop the electricity network to supply chains. The approach to supply chain management suggested represents innovation against current energy network business practices because it would import emerging and innovative approaches from other sectors. We note the

comment from the Expert Assessors that this would represent the first example of a digital supply chain hub in the energy networks sector.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We do not consider the Project to be undermining the development of competitive markets since a core aspect of the Project is focused on developing competitive markets. We note that Project has the potential to significantly increase competition in the provision of high voltage cabling. The proposed digital tool could provide opportunities to support the growth of supply chains within the UK as well as ensuring Transmission Operators have access to the best value international supply chains.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative because it proposes using emerging ideas from the digital sector and applying them to the electricity network sector. The concept of digital supply chains is relatively new, and we note the novelty in applying this proposed solution to the networks. We also agree with the comment from the Expert Assessors that the Project has yet been widely applied in the proposed solution's format in the energy sector.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of stakeholders because they cover a wide range of knowledge and capabilities applicable to the Problem and the proposed solution. Other non-network partners and subcontractors will support National Grid in technology, digital issues, future models and consumer value in a very positive team. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria with the stakeholders and plans set out for the Discovery Phase.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be providing value for money because the costs and activities set out are appropriate for the Discovery Phase. We agree with the Expert Assessors that the costs set out are appropriate and aligned with industry norms for the activities set out. We consider the Project to have met this Eligibility Criteria because the costs are appropriate for the activities set out and the costs of Project Partners are appropriate compared to industry norms, which provides confidence that the Project is providing value for money and is costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The Project plan is clear and is completed to a sufficient standard, with the work packages being realistic and likely to deliver the proposed milestones. We agree that the Project gives confidence in its ability to deliver the Project based on the presented planning information, the milestones and the stakeholders involved.

REACT (Rapid Evaluation Areal Connection Tool)**Table 34: Project Costs**

Cost type	Cost
Total eligible costs	£169,409
Total contribution	£20,089
Total SIF Funding requested	£149,320

Project description

Strategic geographic planning of all future demand and generation connection requests, using green hydrogen as a use case.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended the Project for SIF Funding. The Project was considered to have addressed the Innovation Challenge with its focus on evaluation techniques, which was also considered to involve network innovation. The Expert Assessors considered the Project to represent the potential to deliver a net benefit for consumers and had confidence that it would be capable of progressing in a timely manner.

It was noted that the Application could have been clearer in several areas, including on the potential benefits for consumers, whether the Project involved risk, and the justification for higher costs by one Project Partner.

Overall, the majority of the Expert Assessors recommended the Project for SIF Funding because the Project is examining a new approach to power flow management and planning, which represents value for consumer through a reduction in bills, and therefore recommended the Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria as the Project is focusing on the strategic planning of hydrogen plant investments, a novel area of focus within the development of a resilient and robustness energy system. We agree with the Expert Assessor and consider the Project's focus to address the Innovation Challenge as one its aims is to improve the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it. The Project's focus on hydrogen plant investments is directly related to the core aims of the Innovation Challenge.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it has identified a net benefit for electricity consumers via a financial benefit through a reduction of costs. We agree that the Project has the potential to deliver financial benefits through reducing the need for investment to connect to new demands, as well as through improved forecasting and network planning. While we note the feedback from an Expert Assessor that the net benefit could have been more clearly presented, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it focuses on the introduction of hydrogen plants on the network in areas where the network will have the capacity to support their development. We agree that this combines two currently separate activities (spatial planning and power flow management) into one more efficient activity, thereby representing network innovation. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because the Project has communicated the tool it proposes developing as part of this Project will be open and available to all. Furthermore, it was noted that the tool would improve on key services that are provided by electricity networks (both transmission and distribution networks), and would benefit the emerging hydrogen production market. This represents the possibility for new competitive markets to develop and we therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

This Project is considered both innovative and novel because it takes a new approach to two currently separate activities (planning and power flow management) and because it involves new ways of work for distribution and transmission networks. While we note the comment from Expert Assessors that the specific areas of innovation and risk could have been more clearly presented, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We consider the Project to have participation from a sufficient range of stakeholders for the activities in the Discovery Phase and therefore agree with the Expert Assessors that the Project has met this Eligibility Criteria. We note the Project Partners have the necessary expertise, and the allocation of the proposed work amongst the Project Partners is appropriate for the activities set out. We agree with the Expert Assessors that SMEs in the Project have expertise in visualising and managing geospatial activities, which will play a key role in progressing the Project.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider Project to be costed competitively and to provide value for money. We agree that this is because the Project's costs are appropriate for the activities set out for the Discovery Phase, the Project represents a potential net benefit to consumers, and the majority of the

Project Partners had appropriate day rates aligned with industry norms. However, we do note and agree with the feedback from the Expert Assessors that one Project Partner had higher than anticipated day rates and the justification provided for this could have been stronger. However, overall, we consider the Project to be delivering value for money and to be costed competitively because the costs for the activities set out and for the Project as a whole were considered to appropriate for the Discovery Phase and provide confidence that the Project is providing value for money and is costed competitively.

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.

We note and agree with the comment from the Expert Assessors that the Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner for the Discovery Phase because the Project plan is clear and sufficiently detailed, the risk register is sufficiently clear, and the gantt chart gives support to the descriptions of the work packages. While we agree with the Expert Assessors that the Project could have provided more details in its Project plan, we also note positively the details of how the Project plans on progressing. Overall, we consider the Project to have met this Eligibility Criteria.

Dynamic Networks

Table 35: Project Costs

Cost type	Cost
Total eligible costs	£154,748
Total contribution	£15,475
Total SIF Funding requested	£139,273

Project description

Dynamic Networks: Enabling faster LCT connections in constrained areas of the network, benefiting customers and accelerating Net Zero.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. It was considered to be a Project relevant and aligned with the Innovation Challenge. The Expert Assessors considered it to be innovative and to demonstrate delivery of the potential net benefits to electricity consumers because of its focus on network constraints and low carbon technologies. However, it was noted that the Project could have more clearly articulated how existing Projects are informing this Project, an additional Project Partner would have strengthened the Application, and the costs of one Project Partner were higher than anticipated. However, for each of these Eligibility Criteria, the majority of the Expert Assessors considered the Project to have met this Eligibility Criteria.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to reduce low voltage

constraints on the network, and could help to build the resilience of the network to prepare for the transition to net zero and low carbon technologies. We agree that this is directly related to the one of the aims of the Innovation Challenge, which is to improve the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified a potential to deliver a net benefit to electricity consumers. This is because the Project represents the potential to enable low carbon technology developments through earlier participation of customers in flexible demand markets at low voltage. This could expedite the readiness for net zero and deliver financial savings through delaying reinforcement projects. Alleviating network constraints will help to deliver more low carbon technology with lower running costs to reduce costs and reduce emissions. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Assessors and consider the Project to involve network innovation because overcoming the problem of enabling net zero through low carbon technology without reinforcement expenditure and resulting disruption on the network involves network innovation. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to not undermine the development of competitive markets. We agree with the comment from the Expert Assessors that the output of the Project will be disseminated freely and will include openly sharing standard specifications for load control, low carbon technology demand assessment techniques and initiating an open tender for procuring demand

management solutions. As a result, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky. We agree with the Expert Assessors that the innovation and increased risk lies in the use of low carbon technologies at scale in a network constrained area. We also noted that the Project provided detail on how the learning will be used in an innovative way, extending learning beyond and noted that demand flexibility has only been attempted at non-domestic level. Overall, the Project meets the Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase. The Partners include both suppliers and local government, and were considered qualified and with the necessary skill set in their respective fields to achieve the goals of the Project. It was noted that participation from a stakeholder which has experience in examining the solutions would have strengthened the Application. Overall, the Project was considered to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be providing value for money and as being costed competitively. We noted that the Project has the potential to deliver strong benefits to customers of the low carbon technologies and is therefore providing value for money. While we agree with the comment from the Expert Assessors that greater justification could have been provided for some of the higher than anticipated costs from Project Partners, we also agree that the Project as a whole is providing value for money and is costed competitively for the activities set out. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to be well thought through and to have a sufficiently robust methodology, giving confidence it is capable of progressing in a timely manner. It was noted that the detailed account of time allocations included in the Project management book indicate a high level of planning. The Project plan also includes focussed work packages and deliverables, demonstrating sound Project management abilities. Overall, we agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

D-Suite**Table 36: Project Costs**

Cost type	Cost
Total eligible costs	£157,114
Total contribution	£25,239
Total SIF Funding requested	£131,875

Project description

Our proposal is ambitious in its scope but carefully planned to ensure delivery of SMART goals at different SIF-Phases. It is focused on addressing the necessary transformation of the LV network. The Discovery phase comprises the elaboration of a feasibility study which, recognising the latest advances in power electronic technology and the most recent learnings from relevant innovation projects, analyses the costs and benefits of deploying D-suite devices, which in-turn lays a solid foundation for the successful trial and roll-out in the later phases of SIF.

Summary of Expert Assessors' feedback

The Project was considered by each of the Expert Assessors to have met all of the Eligibility Criteria and therefore the Project has been recommended for SIF Funding. The Expert Assessors considered the Project to be innovative as it is examining new solutions which have not been deployed on the UK's electricity network and represent the potential to deliver efficiency and cost benefits to consumers. The Project Partners and Project plan gave the Expert Assessors confidence that the Project will be able to deliver the Discovery Phase in a timely manner.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria because it is focused on providing insights into how low-voltage networks be optimised to encourage additional low carbon technology deployments. This demonstrates a potentially novel way of improving the energy system resilience, whilst preparing for an efficient role out of improved infrastructure. This is directly related to the Innovation Challenge's aim of improving the understanding of robustness in future energy system configurations and developing solutions to improve it and strengthen it. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a potential to deliver a net benefit to electricity consumers through financial benefits, as the Project was considered to present the potential for there to be cost savings associated with reducing network losses and deferring network reinforcement. We also agree with the comment from the Expert Assessors that the Project has the potential to increase efficiency and speed of electricity network management, thereby representing the potential for additional benefits for electricity consumers via financial benefits.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it represents a potential to re-optimize the low-voltage network and introduce new and innovative control algorithms to be better equipped with more renewable energy being connected to the network. This focus involves network innovation because it could increase network efficiency and resilience through the use of new algorithms. We agree with the Expert Assessors and consider this Project to involve network innovation, and therefore considered this Eligibility Criteria to have been met.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it is developing a new sub-sector of the market while supporting the operator and the energy customer. We agree with the comment from the Expert Assessors that potential innovations on the low voltage market could lead to increased competitive opportunities. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider this Project to be innovative and risky because it is developing new tools and methodologies to increase the capacity on the network, which have not been tested on a UK network. The Project represents the potential for network optimisation to be reconsidered and that the technological advancements required as part of this will necessitate an innovative approach. We also agree with the comment from the Expert Assessors that the Project is innovative and risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include representation from a sufficient range of stakeholders for the Discovery Phase activities. The expertise of the Project Partners is appropriate for the activities described, and we considered the involvement of multiple electricity network operators, an academic institution, and power electronics support to be beneficial for the Project. We therefore agreed with the Expert Assessors and considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively as the activities described and costs of the Project Partners are appropriately priced for the activities set out and against industry norms. Similar to the Expert Assessors, we noted positively the

contribution by the Funding Party and Project Partners which exceeds the minimum contribution requirement and helps to provide greater overall value for the Project as a whole. The benefits offered by the Project also represent value for money compared against the costs of the Project.

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.

We agree with the Expert Assessors and consider the Project to have a sufficiently robust methodology to have confidence that the Project will be capable of progressing in a timely manner because the Project plan, risks and responsibilities are clearly outlined. We also noted a clear commitment from the Project Partners in the deliverables and milestones, which gave them confidence the Project would be capable of progressing in a timely manner. We therefore agreed with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Scenarios for Extreme Events

Table 37: Project Costs

Cost type	Cost
Total eligible costs	£182,949
Total contribution	£32,950
Total SIF Funding requested	£149,999

Project description

This project seeks to develop a proactive approach to identifying and analysing extreme, unexpected events, and forecasting their impact on the electricity grid and wider energy system. Novel use of probabilistic modelling combined with insights from risk management, insurance costing and climate modelling experts will be used to develop a decision-making tool to improve whole system resilience in a rapidly changing world.

Summary of Expert Assessors' feedback

All Expert Assessors have recommended for SIF Funding. The Project was considered to have addressed the aims of the Innovation Challenge, and gave confidence that it will be delivered in a timely manner and does not undermine competitive markets but instead has potential to enhance them. It was also considered to have demonstrated network innovation because of its focus on providing a solution that cuts across multiple energy vectors. The Expert Assessors also considered the Project to be innovative and risky because of its focus on developing a proactive framework for responding to 'black-swan' type events, which was considered innovative and risky because it is an emerging area of focus, and to have the potential to deliver a benefit to consumers.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has potential to directly increase the knowledge surrounding the risks associated with extreme weather events, which themselves are a major element of disruption to energy networks. We also agree with the comment from the Expert Assessors that this focus addressed one of the aims of the Innovation Challenge, which is to improve understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers through a reduction in outages in extreme events and lower system costs. We agree that these represent a potential financial benefit.

We also agree with the comment from the Expert Assessors that the Application would have benefited from estimated value of benefits and details on how it could be measured or the planned methodology for assessing the benefits. However, overall, we agree with the Expert Assessors and consider the Project to have sufficiently identified a net benefit for the Discovery Phase and considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it aims to provide a solution that cuts across multiple energy vectors and could potentially create a novel probabilistic modelling of extreme events through state-of-the-art methods and approaches that are being considered and progressed in other sectors across the electricity sector. We agree with the Expert Assessors that this Project met the Eligibility Criteria as a result.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets as it is likely that the Project will open the energy market to new participants, products and services or enhance existing datasets. We agree that the Project met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it aims to develop a proactive framework for responding to 'black-swan' type events. The risk was considered to come from the methodology for assessing the value of benefit not known and requiring in-depth research. The Project's focus area is an emergent area of knowledge, with a large amount of uncertainty in terms of when events may appear, and when they do, the impacts that might be associated with them.

We agree with the Expert Assessors and consider the Project to be innovative and risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met. This was because the Project Partners all play a key role in the Project's focus area, and include an electricity network operators, gas network operators, met office, academic institution, and an insurance specialist. We also considered the stakeholders to be sufficient for the scope of works outlined for the Discovery Phase and considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria. We noted that the Project was providing value for money because its outputs have the potential to be more than Project's costs, and also

extend beyond the energy sector to other service providers, such as roads, rail, water. We noted that the Funding Party has subcontracted significant portions of the work out and because the subcontractor is not a Project Partner there isn't the same level of detail available. We agree with the Expert Assessors that greater details on the subcontractor would have strengthened the Application. We also noted that the Project could have more clearly communicated how existing assets and facilities would be incorporated into the Project. Overall, however, we agree with the Expert Assessors and considered the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project has demonstrated a robust methodology, clear milestones, resource requirements, and Project plan. We agree with the Expert Assessors that these give confidence of an effective approach to timely project delivery and consider the Project to have met this Eligibility Criteria.

Resilient Customer Response

Table 38: Project Costs

Cost type	Cost
Total eligible costs	£137,975
Total contribution	£20,086
Total SIF Funding requested	£117,889

Project description

Resilient Customer Response will explore how new categories of customers with behind the meter assets can help themselves and other local network customers by improving resilience in the event of network outages.

Summary of Expert Assessors' feedback

The Expert Assessors all recommended this Project be approved for SIF Funding. The Expert Assessors considered the Project's area of study to have addressed the Innovation Challenge and they considered the topic to be innovative and novel, representing a clearly identified potential to deliver a net benefit to electricity consumers through increased efficiency and reduced costs. It was also noted to involve network innovation as its focus goes beyond traditional focus. Whilst it was noted that the benefits for vulnerable consumers could have been more clearly identified, and that the costs of one Project Partner were higher than anticipated, the Expert Assessors still considered the Project on the whole to have the potential to deliver a net benefit and as providing value for money and being costed competitively.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is examining an underexamined area of behind-the-meter (BTM) assets in homes and businesses and their role in restoring power following incidents. We agree with the Expert Assessors and consider this to be a novel approach to achieving energy resilience which addresses the Innovation Challenge and is directly related to the Innovation Challenge.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified a potential to deliver a net benefit to electricity consumers because the Project has the potential to enable communities to become more resilient in times of a power loss, leading to social benefits, and that the Project could minimize service losses whilst avoiding costly upgrades, thereby delivering financial benefits. Whilst we noted that the benefits for vulnerable consumers could have been more clearly presented, we agree with the Expert Assessors and considered this Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is examining non-traditional and whole system methods to mitigate outages on electricity distribution networks. We agree that the Project's approach would represent a potential reduction in the timing and frequency of disruptions, as well as a reduction in required unplanned network asset replacement, all which would increase the efficiency of the network. We agree that the Project involves network innovation because it is looking at how network efficiency and resiliency can be improved beyond business as usual focuses. We agree with the Expert Assessors and consider this Eligibility Criteria to have been met.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets because there currently is not a market for localised energy resilience services and the Project could encourage the development of a more active low carbon technology market in the UK, thereby creating new competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

The Project was considered innovative, novel and risky by the Expert Assessors because the Project's focus on behind-the-meter solutions was considered to have the potential to deliver a more holistic energy system approach which has not been examined or trialled in detail in the UK to date. We also agree with the comment from the Expert Assessors that this is innovative and novel. We also note that the Project is risky because it would likely require regulatory advancements for it to be fully implemented. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to involve participation from a suitable range of stakeholders for the Discovery Phase activities. We agree that the Project Partners are experienced in the Project's focused areas of work, and we consider the roles of the Project Partners, including the involvement of a law firm and academic institution, to be sufficient for the plan proposed in the Discovery Phase.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the majority of the Expert Assessors and consider the Project to be providing value for money and being costed competitively. Whilst the value of the Project's research into a new area is noted as representing value for money because of the potential benefits, we also noted that the costs of one Project Partner were higher than anticipated with limited justification. Greater justification on this in particular would have strengthened the Application. We do note that the Project as a whole was costed competitively for the activities set out for the

Discovery Phase. Like the Expert Assessors we noted favourably the contributions from the Funding Party and Project Partners as this provides confidence that Project's overall costs are providing value for money. Overall, we consider the Project to be providing value for money and as being costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have clearly presented its objectives and plan for the Discovery Phase. The Project plan provides confidence that the Project will be capable of progressing in a timely manner because the risks and milestones have been clearly communicated and are appropriate for the Discovery Phase. We also note favourably the allocation of work packages between the Funding Party and the Project Partners.

Whole Energy System Resilience Vulnerability Assessment

Table 39: Project Costs

Cost type	Cost
Total eligible costs	£160,642
Total contribution	£17,822
Total SIF Funding requested	£142,820

Project description

Project WELLNESS will develop a standardised approach to embed resilience into whole energy network decision making.

Summary of Expert Assessors' feedback

All Expert Assessors considered the Project to have met all Eligibility Criteria and all recommended it for SIF Funding. The Application was considered to have addressed the Innovation Challenge as the use of demand-side flexibility for resilience offers an important future system benefit, both in terms of enhanced resilience and lower cost to consumers. The Project proposes how both the flexibility resources and their application to resilience needs will be investigated prior to a practical application. The identification of assessment tools should be a valuable output and was considered to involve network innovation.

The Project also has the potential to deliver cost savings to consumers as well as carbon emission savings. The Project was also considered to deliver value for money and as being costed competitively, and also gave confidence to the Expert Assessors that it will be capable of progressing in a timely manner.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it focuses on developing the tools and modelling needed to justify regulated expenditures that will improve the resilience of the power system in the face of growing challenges from intermittency, extreme weather events and cross-fuel linkages. We agree with the Expert Assessors that this addresses the Innovation Challenge as it is directly related to one of its aims which is to develop innovations using multi-energy configurations for increasing system resilience. The Project was considered by the Expert Assessors to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers (and gas consumers) through cost savings. The Project plans on identifying and quantifying rare events and, with modest investments early, high retrofit costs can be avoided later, thereby resulting in cost savings. We agree that this focus presents a clearly identified potential to deliver a net benefit to electricity consumers.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it builds on previous research around the need for planning tools which it considers cross-fuel and intermittent power options to support flexibility whilst considering complexities of risks which could threaten network resilience.

We also agree with the comment from the Expert Assessors that the focus of the Project could have been more clearly articulated, but overall we agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria and to involve network innovation because it aims to identify and mitigate complex and unusual risks which threaten the resiliency of the network.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the outcome will be an open access tool which could support the creation of new markets and services. We therefore agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel because it aims to integrate simultaneously the events whose impacts in the past have been considered separately, and risky because it identifies the cost of the risks and the benefits of mitigating them. The Project was considered novel because the Project plans to develop this information and the resulting tool into an output which is open access, to support planning and distribution flexibility activities.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of stakeholders for the Discovery Phase. The stakeholders represent all interests for being able to deliver the proposed Project successful whilst taking into consideration the different viewpoints and expertise. We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because the work required was considered extensive and the costs are almost entirely highly skilled labour, providing justification for the higher costs. Furthermore, we noted that more than 10% of total funding is being made up by contributions from the Project Partners which was considered to demonstrate value for money for the Project's overall costs. Overall we consider the Project to be providing value for money and to be costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. This is because the Discovery Phase is divided into appropriate work packages and allocated to the organisation with the relevant expertise. Simple milestones have also been set. The risk register was also considered clear. We therefore consider the Project to have met this Eligibility Criteria.

SF6 whole life strategy**Table 40: Project Costs**

Cost type	Cost
Total eligible costs	£132,899
Total contribution	£13,292
Total SIF Funding requested	£119,607

Project description

To develop an economic, efficient and holistic replacement strategy for SF6 that will support GB's ambition to facilitate a net-zero and resilient energy system.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended the Project to be approved for SIF Funding. The Project was considered to be taking an innovative, novel and risky approach to investigating a long-standing problem in the industry of SF6 usage and the development of alternatives, which was also considered to involve network innovation. Whilst it was noted that the Application could have been clearer on its proposed benefits and how the Project plans to utilize the existing expertise in the sector, the majority of Expert Assessors considered the Project to have met all of the Eligibility Criteria. The Project provided the Expert Assessors with confidence that it will be capable of progressing in a timely manner in the Discovery Phase.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because of its focusing on removing SF6 from electricity

lines and developing an alternative, which supports the UK's net zero target whilst also ensuring energy system resilience and robustness is upheld. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because of this focus, which aligns directly with one of the Innovation Challenge's core aims.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified the potential to deliver a net benefit to electricity consumers through environmental benefits because of the replacement of SF6 in the use of electricity lines, a potent greenhouse gas. This is directly related to the aims of the Innovation Challenge, one of which is to improve the understanding of trade-offs between increasing resilience, robustness and the cost implications and consumer trust & acceptability in the net zero transition. We therefore considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because the focus on SF6 alternatives is an innovative area for networks which moves away from a business as usual approach. We noted that additional information could have been provided to support the Project's Application, particularly around what has already been tested for SF6 alternatives, but considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the Project would support finding transitional pathways to enable alternative offerings to the networks use of SF6 and in the transition to net zero. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky as the Project's focus is in a key area in which network innovations are difficult. The approach communicated by the Project was considered to be new and innovative whilst still retaining elements of risk due to the transition away from SF6 being an ongoing area of struggles for networks. We also agree with the comment from the Expert Assessors that the Project could have more clearly presented some aspects of its Project, including the risk of new gas regulations to the Project. However, we considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to involve participation from a sufficient range of stakeholders for the Discovery Phase activities. We also agree that the Project would have been strengthened by including stakeholders who are already working on developments in the SF6 transition. However, on the whole, we consider the Project to have participation from a sufficient range of stakeholders for the Discovery Phase.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be providing value for money and as being costed competitively. We agree that the Project could have more clearly communicated the Project's value for money considering other areas are likely already examining the transition away from SF6. However, the majority of the Expert Assessors considered the Project to represent value for money because it has clearly communicated the potential benefits (financial and environmental) of finding solutions and that cost savings could be significant. We also agree that the costs of the Project Partners and the Project as a whole are costed competitively for the activities set out.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that the Project would be capable of

progressing in a timely manner. We also considered the engagement between relevant stakeholders for the development of alternative to SF6 to be sufficient for the Discovery Phase. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

SCOHL – SuperConductor Overhead Lines**Table 41: Project Costs**

Cost type	Cost
Total eligible costs	£153,846
Total contribution	£21,339
Total SIF Funding requested	£132,507

Project description

The SCOHL project, led by National Grid Electricity Transmission (NGET), will explore the opportunity for deploying high-capacity, superconducting overhead lines in the UK, gauge technical and economic limitations, and roadmap a means to scale adoption for customer benefit.

Summary of Expert Assessors' feedback

The Expert Assessors considered this to be a well-developed Project which has the potential to alleviate some of the pressures on the transmission grid resulting from increasing numbers of renewable generation centres through the use of cooled, semi-conducting overhead lines. The team has the skills and experience to tackle the problem, with a suitable consortium of credible Project Partners and collaborators. Ultimately the Project has potential to deliver a tangible range of benefits to consumers. The Expert Assessors noted the network innovation in its approach to network design and supply constraints, and have confidence that the Project would be capable of progressing in a timely manner.

Overall, the Expert Assessors considered the Project to have met all the Eligibility Criteria and have recommended it for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We consider the Project to have addressed the Innovation Challenge because it has the potential to increase the electricity transmission network resilience and robustness. More specifically, the Project has the potential to reduce transmission losses while accepting higher input of renewables, which addresses the Innovation Challenge as it directly relates to one of its main aims, which is to incorporate resilience and robustness as key and measurable considerations into future multi-energy system design.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have a clearly identified potential to deliver a net benefit to electricity consumers because it has addressed the possibility of freeing-up of transmission capacity at pinch points on the UK grid system using a novel transmission technology. We agree that this could deliver benefits to electricity consumers through lower transmission network costs, faster pathways to be able to connect up new renewable generation to demand centres, and improved security of electricity supply. We agree that these represent a potential to deliver a net benefit in the form of financial benefits.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it aims to solve capacity of overhead transmission lines with improved, novel assets. Use of these may help with grid planning, better load carrying, and cost optimisation. The innovation proposed by the Project presents the possibility of qualifying and deploying new technology into high voltage overhead lines, which involves network innovation because it represents an opportunity to examine network design and solve capacity issues. We therefore agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the Project does not represent a possibility to distort or undermine the development of competitive markets. We agree with the comment from the Expert Assessors that greater details on how the Project's proposed solution would be made available to others would have strengthened the Application. However, overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it aspires to prove the all the operating parameters required for the successful upgrade of overhead lines to superconducting materials. The Project represents a 'first of a kind' trial with this novel super conducting technology for use in real overhead transmission lines. Use of the existing transmission corridors, with increased capacity through use of novel methods, is also innovative at a system level. We therefore considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders including the transmission network, expertise in high voltage transmission planning and technologies, an innovative technology developer, as well as a range of suitably qualified subcontractors. We also noted that additional value might be brought to the Project with some participation or input from a contracting organisation involved in the installation of overhead lines, to test operational viability. However, overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it is delivering value for money and is costed competitively in line with industry standard rates. Like the Expert Assessors we note favourably the value of contributions above the minimum required from the Project Partners' own resources as this provides confidence that the Project's overall costs are providing value for money and are costed competitively. The Project is considered to be delivering value for money with a suitably experienced delivery team, which in turn should minimise the risks to successful delivery of the Project, representing value for money. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. We agree that the Project is well structured and planned, with major risks identified. Most necessary skills and experience are available with an approach for engaging key stakeholders. We note that there is a robust methodology for the Discovery Phase, and the path to business as usual following is reasonably well considered for this early stage of the project.

Trinity**Table 42: Project Costs**

Cost type	Cost
Total eligible costs	£154,770
Total contribution	£19,977
Total SIF Funding requested	£134,793

Project description

By determining and then implementing the requirements, specifications and architecture for control room simulator facilities, Trinity seeks to address the increasing complexity facing control room staff and systems that is being driven by the Net Zero transition. If successful, it will enhance DNOs' abilities to handle conflicts between different priorities and parties, better manage uncertain levels of demand and generation, maintain system resilience, develop DSO capabilities, test and exercise innovative solutions ahead of implementing into the production system.

Summary of Expert Assessors' feedback

All Expert Assessors recommended this Project for SIF Funding. The Application was considered to address an important aspect of future network operation directly addressing the Innovation Challenge, and its successful implementation could help with the transition of DNO to DSO. The Project was considered to be innovative and to involve network innovation, as well as being costed competitively and to represent value for money. The Expert Assessors also noted the Project's potential to deliver a net benefit to electricity consumers through increased system efficiency and management. The Expert Assessors have confidence that the Project will be capable of progressing in a timely manner because of the clearly articulated Project plan, roles and deliverables, and risk register. Overall, the Expert Assessors considered the Project to have met all the Eligibility Criteria and recommended it for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is centred around a tangible solution that is directly aimed at improving the resilience of network operation for increasingly complex distribution systems. We agree that this is directly aligned with one of the Innovation Challenge's aims of improving the understanding of robustness in future energy system configurations and to develop solutions to improve and strengthen it. We also agree with the comment from the Expert Assessors that the Project could advance the transition of DNOs into DSOs, which could be a key part of a secure and flexible operation of future distribution networks.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have identified the potential to deliver a net benefit to electricity consumers because the Project has the potential to reduce the costs for the electricity network, with more efficient use of flexibility resources on the grid, which therefore has the potential to deliver a net benefit to electricity consumers through financial benefits. We also noted that the Project has the potential to reduce the risk of system failure, over-design and over-resourcing, further contributing to saved costs for consumers. We considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because the Project is centred around developing a control room simulator. We agree that this is a fairly novel and new technology which could allow operators to analyse system performance and behaviour under a variety of simulated conditions and scenarios. We agree that this involves network innovation as the Project has the potential to enable control rooms to be better prepared and also optimise systems to reduce costs and maximise performance. This technology

also represents the potential to advance network operation practices to better utilise the data available to them in relation to network conditions and flexibility providers. We agree that the Project involves network innovation and consider it to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets. We agree with the Expert Assessors that the Project may assist with visibility of the grid among low-carbon technologies and that this could reduce barriers to connection, thereby enhancing competition. We also noted that simulator proposed by the Project would be available to technologies, which could support competition amongst the technology providers. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because the technology and scope is new and novel, and a simulation system for a complex distribution environment has not yet been developed or trialled. This represents innovation, novelty and risk by the Project. We also noted that the Project is ambitious and there are a number of risks, as the scope of the proposed solution is broad and covers multiple low carbon technology options.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase because the consortium includes a distribution network operator, a system provider, an academic body and other stakeholders who will play key roles in design, development, use and exploitation. We agree with the Expert Assessors that wider engagement with the Electricity System Operator would have strengthened the Application, but consider the participation and stakeholders to be sufficient for the activities set out. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and costed competitively. We note the comment from the Expert Assessors that the Project has the potential to deliver considerable benefits to consumers. We agree and consider the potential impacts against the cost of the Project to represent value for money. We also note that the Project's costs are appropriate for the Discovery Phase activities set out and day rates are sufficient, providing confidence that the Project is costed competitively and the Project as whole is providing value for money. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to be well thought through with a robust methodology, capable of progressing in a timely manner. The division of work into packages, milestones, and deliverables, as well as individual partner responsibilities, are all clear and give confidence that the Project will progress in a timely manner. The Project also has included a clear, well informed risk assessment which we note was clearly articulated and explained. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

CommsConnect**Table 43: Project Costs**

Cost type	Cost
Total eligible costs	£122,376
Total contribution	£12,238
Total SIF Funding requested	£110,138

Project description

The project addresses the challenge of providing reliable and resilient high-quality communications for future grid operations at lower capital and operational costs by combining public and private communication networks.

Summary of Expert Assessors' feedback

All the Expert Assessors recommended the Project for SIF Funding. The Expert Assessors considered the Project to have set out a clear need to develop a strategy for delivering suitably resilient communications systems to manage electricity network systems. The Project was considered to have highlighted the issues (and merits) of using wider public telecoms to respond to outage situations, and considered the Project's approach to involve network innovation. The Expert Assessors also considered the participation from the Project Partners and stakeholders to be sufficient for the Discovery Phase activities set out and had confidence that the Project will be capable of progressing in a timely manner because of the clearly outlined milestones and deliverables.

The Expert Assessors noted that greater development of the potential benefits and value for money would have strengthened the Application.

Overall, all the Expert Assessors recommended the Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because telecoms resilience is a key area of resilience for smart grids and the future of energy networks. Like the Expert Assessors, we consider this to be directly related to the Innovation Challenge's aim of incorporating resilience and robustness as a key and measurable considerations into future multi-energy system design. We therefore considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria. The Project has clearly identified potential net benefits that may be delivered through the provision of suitably resilient communications infrastructure at the least cost to electricity consumers. The potential benefits identified were considered to have been described well. Provision of new services and an enabling ability to deliver infrastructure at lowest cost were clear in the Application. The impacts on consumers are implied rather than directly considered, and the justification of how carbon emissions savings will be achieved directly as a result were clear but high level. As a result, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is focussed on electricity network control systems and communications technologies which is becoming increasingly important in a more distributed and intermittent energy system. We therefore agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the Project is looking to make best use of commercially available technologies to allow electricity networks to make best use of competitive markets to deliver resilient control systems in the most affordable manner. Like the Expert Assessors, we do not consider this to be undermining the development of competitive markets and see the Project as representing opportunities for the development of new competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because the proposed optimisation of telecoms network assets across different service providers is novel and innovative in comparison to current practices, approaches and processes. We also agree with the comment from the Expert Assessors that the Project's proposed solution of being able to switch between communications systems was innovative. We agreed with the Expert Assessors and considered the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because the Project includes a suitable range of stakeholders for the Discovery Phase activities set out. We note that the Project includes wide participation across energy, networks, and digital communications. However, it was also noted that participation from commercial telecoms operators and demand side technology providers/ aggregators would have strengthened the Application. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria. We agree with the Expert Assessors that the costs and distribution amongst Project Partners were considered appropriate for the Discovery Phase activities set out and provide confidence that the Project is

providing value for money and is costed competitively. We note the comment from Expert Assessors that the Project represents potential benefits greater than the cost of the Project, thereby providing value for money. We agree that stronger quantified evaluation of the value that interventions would have strengthened the Application. However, overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to be well thought through, with a sufficiently robust methodology for the Discovery Phase which gives confidence that will be capable of progressing in a timely manner in the Discovery Phase. The Application is robust and well thought through, with milestones and deliverables clearly set out. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

WARN (Weather Alerts and Risk analysis for Network operators)**Table 44: Project Costs**

Cost type	Cost
Total eligible costs	£121,830
Total contribution	£12,183
Total SIF Funding requested	£109,647

Project description

The WARN project aims to develop and test an integrated digital solution to monitor weather and climate-related asset vulnerabilities and enable Distribution Network Operators (DNO) to better respond to weather shocks, improve operational preparedness, make better decisions, and inform planning that will improve the robustness and resilience of distribution networks and their operations to future climate change.

Summary of Expert Assessors' feedback

The Expert Assessors recommended this Project for SIF Funding. They considered the Project to have addressed one of the main aims of the Innovation Challenge.

The Expert Assessors considered the approach to be innovative and novel, and to involve network innovation. They have confidence that the Project will be capable of progressing in a timely manner because of the clearly articulated Project plan, milestones and roles in the Project. The Expert Assessors also noted that the Project has the potential to deliver consumer benefits through increased network resilience and response times. The Expert Assessors also noted that the Project has been costed competitively for the activities set out and represents value for money with its proposed solution.

It was noted that greater consideration of the solution, including consideration for how other networks are approaching this topic area, would have strengthened the Application.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is mitigating the impacts of weather (and vegetation) on distribution networks to make the network more resilient. We agree that this addresses the Innovation Challenge because it aligns with the Innovation Challenge's aim of improving the understanding of robustness in future system configurations and is proposing a solution to improve and strengthen it.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers because the application demonstrates that the Project will deliver a reduction in customer interruptions and customer minutes lost due to adverse weather conditions. In addition, protecting vulnerable customers from service disruption is an important challenge for networks and this Project proposes a solution for this. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is examining opportunities for solutions which seek to mitigate the impacts of increasingly adverse weather on the reliability and resilience of networks. This focus on improving the network resiliency and opportunities for mitigating the impacts of adverse weather involves network innovation because it would increase the networks overall resiliency.

We note the comment from the Expert Assessor that the Application would have been stronger if it more clearly considered open design options available currently rather than deciding ahead of the Discovery Phase which option to take forward.

Overall, however, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to undermine the development of competitive markets because the Project could create new opportunities for markets and the Application has demonstrated how users can access the output tools through the licensing mechanism. We agree with the Expert Assessors that this does not undermine the development of competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel because it focusses on how distribution networks are impacted by weather and outside events. We note the comment from one Expert Assessor that the quantity of potential input data from this Project represents a risk to the Project as there may be additional variables and inputs which the Project was unaware of and thereby making this Project's idea risky. We agree with the Expert Assessors that this Project is innovative as it could advance understanding and monitoring of asset data for distribution network operators.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because the Project Partners were considered sufficient for the works set out for the Discovery Phase. We also agree with the comment from the Expert Assessors that the Application would have been strengthened with a commitment to engage additional stakeholders outside of the Project Partners to ensure the solutions proposed and inputs are transferrable.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and to be costed competitively because the response is detailed and clear on how the Applicant intends to keep costs under control. We agree that the justification for labour rates were clearly articulated and the balance of costs between Project Partners was reasonable considering that most of the scope lies with the academic Project Partner. This helps to provide confidence that the Project is providing value for money and is costed competitively. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because it has clear milestones and a clear Project plan. We also note positively the Project's clear allocation of roles and responsibilities.

Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Connectrolyser**Table 45: Project Costs**

Cost type	Cost
Total eligible costs	£139,521
Total contribution	£20,996
Total SIF Funding requested	£118,525

Project description

Connectrolyser aims to scale hydrogen electrolyser hub development by developing a novel electricity connection agreement and flexibility product to expedite new connections and support the societal and industrial hydrogen demand to achieve net zero while minimising impact of the network.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. The Expert Assessors noted that the Project addresses the Innovation Challenge and was considered to be examining an important problem in the decarbonisation of the UK energy system. The Expert Assessors noted that the Project was well thought out with a strong team of project stakeholders.

The Expert Assessors noted that the Project's focus on using flexibility with hydrogen electrolyser was innovative and novel, and involved network innovation. It was noted that greater details on how it will interface specifically with the electrolyser requirements would have strengthened the Application. The Expert Assessors had confidence that the Project will be capable of progressing in a timely manner because of its clearly articulated activities for the Discovery Phase. The Project was also considered to be providing value for money and as being costed competitively because of the contributions made to the Projects overall costs.

Overall, this Project was considered by the majority of the Expert Assessors to have met all the Eligibility Criteria and was therefore recommended for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge. The Project has the potential to facilitate the straightforward connection of electrolyzers to the distribution network, which could support increased resilience and robustness, and was related to one of the aims of the Innovation Challenge. Greater details on whether the flexibility proposed by the solution would deliver similar levels of resilience to a firm connection would have strengthened the Application. However, overall, the Project was considered by all the Expert Assessors to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a potential to deliver a net benefit to electricity consumers. This is because the Project could reduce the losses on the distribution system while increasing the systems utilisation. The Project has identified benefit for electricity consumers through the potential to reduce the socialised costs of operating the distribution system, thereby resulting in a financial benefit. Additionally, the Project also could potentially result in a reduction of carbon emissions from distribution network operations, resulting in an environmental benefit. As a result, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the majority of the Expert Assessors and consider the Project to involve network innovation because the Project is examining the possibility of introducing 'smart' connections for hydrogen electrolyzers, which we agree involves network innovation. More specifically, we agree that the 'smart' connection involves network innovation because it could result in more effective load

management of the distribution network. We also agree with the comment from the Expert Assessors that the Application would have been strengthened if it provided greater details on how flexible connections will interface with the technical and commercial requirements of electrolyzers. On balance, however, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to undermine the development of competitive markets. This is because the Project will work to reduce costs, and with it, the barriers to entry into the green hydrogen sector. We also noted that should the Project's proposed solution be successful, it would enhance competition rather than inhibit it. The technological advancements made by the Project will also be shared with distribution network operators to minimise any operator from having a competitive advantage.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel. The Project is innovative because of the technology involved, as it will facilitate electrolyser connections to the electricity supply. As electrolyzers are likely to be high energy users they will provide additional burden and constraint onto the network but the flexibility approach was considered innovative and novel. As noted above, greater details on how flexible connections will be interfacing with the technical and commercial requirements of electrolyzers would have strengthened the Application. However, on balance, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase. This is because the Project includes an electricity network, gas transmission network and will bring together organisations with expertise in hydrogen electrolysis, in addition to potential users of the hydrogen produced. The stakeholders represent the key

components of a future green hydrogen sector and for the Discovery Phase activities set out.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be providing value for money and to be costed competitively. This is because the Project puts forward significant contributions from the Project Partners which provides confidence that the Project's overall costs are providing value for money. The overall costs are considered appropriate for amount of work set out for the Discovery Phase. Additionally, the Project Partners are in excess of the minimum contribution requirement, which was noted positively and as providing value for money for the Project on the whole.

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.

We agree with the Expert Assessors and consider the Project to be well thought through and to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. This is because of the detailed consideration that the Project Partners have given to the construction of the work packages and associated interdependencies. We also agree with the comment from the Expert Assessors from the Expert Assessors and note positively the level of detail in the work plans. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Electricity Projects not selected for funding

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Annex 4: Application assessment - Innovation Challenge: Accelerating decarbonisation of major energy demands

Chapter 4 of this document provides detail about the scope of the Innovation Challenge: accelerating decarbonisation of major energy demands, as well as summarising the total number of Projects funded and total value of SIF Funding awarded for the Discovery Phase of round 2.

This annex details our assessment and decisions on Applications submitted in response to that Innovation Challenge. Our assessment of each Project is set out within:

- Pages 191 - 206 set out our assessment of each gas Project that has been selected for funding, together with our decision.
- As all gas Projects submitted under this challenge were selected for funding, no gas Projects were redacted from the published document.
- Pages 207 – 258 set out our assessment of each electricity Project that has been selected for funding, together with our decision.
- Page 259 sets out our assessment of the electricity Projects that have not been selected for funding, together with our decision. These tables are however redacted from our published document, in order to protect the IPR and innovations of unsuccessful projects

Gas Projects selected for funding

Integrated Hydrogen Transport Hubs

Table 46: Project Costs

Cost type	Cost
Total eligible costs	£150,189
Total contribution	£15,020
Total SIF Funding requested	£135,169

Project description

The Integrated Hydrogen Transport Hubs Project will identify opportunities for the co-location of electrolytic hydrogen refuelling stations and heat demand, where the cost-benefit of waste heat will be assessed in order to minimise the levelized cost of hydrogen for consumers.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors have recommended this Project for SIF Funding. The application was considered to have addressed the Innovation Challenge as it describes a novel approach to reducing renewable curtailment by co-locating hydrogen electrolyzers near to sources of district heating demand. The potential cost savings of reduced renewable curtailment and reduced network infrastructure build was considered to have the potential to provide financial and environmental benefits to consumers. The Project is considered to be of reasonable value for money despite some day rates of Project Partners being higher than industry norms. The work packages provided were clear and provided the majority of Expert Assessors with confidence that it will be capable of progressing, but would have been strengthened by additional detail.

The Project should consider how it can gain input from all Project Partners and the critical end user community to support the outcome, and as a result, a Project-specific condition has been recommended.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it seeks to demonstrate the potential of co-locating hydrogen electrolyzers close to potential sites for district heating where there are current issues with renewable generation being constrained. We agree with the Expert Assessors and consider this to have addressed the Innovation Challenge as it focuses on reducing the costs of connecting and operating decarbonised heat.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have clearly identified potential to deliver a net benefit to gas consumers because the outcomes could lead to a reduced requirement to build new network infrastructure which would result in cost savings by consumers. This was considered to represent a financial benefit. There could also be a reduction in the costs of hydrogen production through reduced curtailment costs and environmental benefits by using waste heat, which represents the potential to deliver financial and environment benefits to consumers.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is examining the use of localised hydrogen production for multiple uses and electrolyser waste heat to provide district heating and thus reduce the cost of hydrogen supply to the consumer and increased availability. This involves network innovation because it could improve the utilisation of existing network infrastructure and reduce the requirement for new network infrastructure

build while improving the efficiency of operation. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the proposed model draws together different energy vectors which do not currently compete with one another. We also agree with the comment from the Expert Assessors that this represents potential for the development of new competitive markets. We also noted that greater details on how future revenues could be accessed by the proposed solution would have strengthened the Application.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it will need to overcome barriers in developing the district heating element of the Project, which is not yet mature in the UK. This involves risk and innovation for the Project and its approach also assumes a reasonable uptake of local hydrogen powered vehicles which is currently not assured, demonstrating a further element of risk in the Project. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because it includes energy distributors, a local authority, and an energy consultancy. We agree that this range of stakeholders have skills which are complementary and will help to ensure delivery of the Project. We also agree with the comment from the Expert Assessors that the wide-ranging Project Partners will also be able to provide valuable insight across the energy heat transport and housing sector.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and as being costed competitively because the allocation of costs across Project Partners is appropriate and represents value for money with the activities set out for the Discovery Phase. We also agree with the comment from the Expert Assessors that the day rates of one Project Partner were higher than anticipated and a more even distribution between the Project Partners would have strengthened the Application, but we also noted positively the contributions which exceed the minimum contribution. This helps to provide confidence that the Project's overall costs are providing value for money and are costed competitively. Overall, we consider the Project to provide value for money and be costed competitively because the Project is providing a higher contribution and while the costs of one Project Partner were higher than anticipated, they are still within range of industry norms. We agree with the Expert Assessors and consider this Project to have met the Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that the Project will be capable of progressing in a timely manner because the Project management information provided is robust. We noted the gantt chart provides clarity over the relevant milestones and deliverables and the Project Partners have strong track records in project delivery. We agree that more details on the description of the tasks under each work package would have strengthened the Application but consider it to have met this Eligibility Criteria.

Calfacto Latent Energy**Table 47: Project Costs**

Cost type	Cost
Total eligible costs	£91,893
Total contribution	£9,424
Total SIF Funding requested	£82,469

Project description

This project is to the efficiency of hybrid heat pumps when coupled with thermal stores through an innovative heat exchanger design.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended the Project for SIF funding. The Project's proposed focus was considered to have addressed the Innovation Challenge. It was noted that it proposes developing innovative methods to removing barriers to customers accessing affordable decarbonised heat, which was also considered to involve network innovation. Integrating hybrid heat pumps with phase change material should reduce overall operational costs of operating a decarbonised heat solution which should lead to reduced consumer costs. The majority of the Expert Assessors considered the Project to have a sufficient participation from stakeholders and a robust methodology.

The Expert Assessors noted that the Project could have strengthened the Application by more clearly articulating the value of this approach in comparison to alternatives as well as the justification of environmental benefits.

Overall, the majority of the Expert Assessors recommended this Project for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is seeking to provide a whole system solution to heat decarbonisation. By coupling gas networks to heat networks with a linkage to electricity networks it has the potential to be an innovative approach to enabling access to lower cost decarbonised heat. We agree that this addresses the Innovation Challenge because it is aligned with one of its aims which is to develop technical approaches to decarbonised heat that reduces overall costs and reduces timescales.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to gas consumers through reducing network infrastructure costs. We also noted that the proposed solution could result in similar benefits (reduced reinforcement requirements) for electricity network consumers as more hybrid heat pumps are deployed. The cost reductions and financial benefits will likely be realized by consumers through lower standing charges because of more effective network sizing and utilisation.

We also agree with the comment from the Expert Assessors that the Application could have been strengthened by providing a stronger argument for the environmental benefits and greater details or justification in its proposed use-case scenario. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is examining the impacts of coupling gas networks with heat networks to enable consumers to access lower cost decarbonised heat. The work undertaken will provide insight into the future sizing and capacity requirements of gas networks. The proposal to directly integrate the hybrid heat pump (HHP) with

the phase change material using the HHP liquid involves network innovation and has the potential to significantly reduce the operational costs associated with phase change material.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because the Project has the potential to be part of a low carbon heating solution and will not preclude other approaches. The Project has also articulated its intent to licence the products developed for use by other gas networks and heat network operators, which we note should encourage duplication. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it is linking hybrid heat pumps with phase change material (PCM) thermal stores. These methods have not been previously tested and there are multiple unknown aspects of how effective they will be in practice, demonstrating risk and innovation in the Project. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of Project Partners and stakeholders for the Project because they have the expertise to deliver and support the work packages described in the Project plans. We agree that the Project has sufficient representation from gas networks, local authorities, commercial and academic partners for the activities described. The technical capabilities were considered to have been well described and the Project has local stakeholders from the relevant councils on board too.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because the costs set out are appropriately allocated across the work packages and are appropriate for the activities set out. We agree with the Expert Assessors that the day rates are appropriate for the activities proposed and give confidence that the Project is costed competitively. We also noted favourably the financial contribution being made by the Project Partners which provides confidence that the Project is providing value for money. Overall, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the project management methodology is sufficiently robust, the Project Partners have an established track record of delivery and there are project management controls in place. The work package activities were also considered to have been clearly described. We also agree with the comment from the Expert Assessors that the Application could have more clearly articulated how the work packages will develop an optimised design. Overall, however, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Net Zero Community Energy Hubs

Table 48: Project Costs

Cost type	Cost
Total eligible costs	£90,603
Total contribution	£9,288
Total SIF Funding requested	£81,315

Project description

Developing models and control systems for co-location of heat networks behind the meter with flexible assets.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. Overall, this Project was considered to be innovative and to have the potential to provide valuable insight into the opportunities created by the control and management of multiple flexible heat assets in community hubs. Enabling more efficient utilisation of such assets could lead to cost savings for consumers, which could result in financial benefits for consumers. Providing mechanisms for heat consumers to access the benefits of flexibility also aligns with the Innovation Challenge's aims.

The majority of the Expert Assessors considered the Project to be value for money and as being costed competitively. The Project methodology is robust and the majority of Expert Assessors have confidence it will be delivered in a timely manner. It was considered to be well structured and to bring together a strong group of relevant stakeholders. It was also not considered to undermine the development of competitive markets.

It was noted in several instances by an Expert Assessor that the Application would have been strengthened by providing greater details on the areas of innovation for the Project and the Project's plan and risks.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it seeks to deliver innovative modelling to demonstrate how community energy hubs can enable heat networks and how customers can benefit from access to flexibility markets. The use of novel techno-economic modelling techniques in combination with new control methodologies has the potential to lead to improved efficiencies between multi vector heat sources. We agree that this addresses the Innovation Challenge because it is aligned with one of its aims which is to demonstrate coordination between flexibility, energy efficiency and regional/local planning activities that reduce costs and improves consumer experience for decarbonisation.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to gas consumers because the Application has articulated the counterfactual in a clear manner. Facilitating a hybrid approach to low carbon heat has the potential to result in reduced end costs to consumers (thereby resulting in a financial benefit) as well as increased volumes of green heat being available. The Project has the potential to provide detailed modelling, which could provide cost reduction estimates across both fixed and variable elements of gas bills. Providing insight into the opportunities available from energy flexibility markets could also create additional supporting evidence of benefits for gas consumers. We note the comment from the Expert Assessors that the Application could have been strengthened by providing more detail on the techno-economic case for including local hydrogen production and the costs associated with converting existing assets to hydrogen.

We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is focusing on using existing gas network infrastructure to facilitate the development of novel models of hybrid low carbon heat control and management. Developing new behind the meter hardware and software control strategies for a multi-vector low-carbon heating scheme is a complex endeavour which has the potential to deliver consumer value and network efficiencies.

The utilisation of gas network data in combination with hydrogen and heat network data was considered to involve network innovation because it has the potential to provide insight into cost savings which can be achieved without new gas network infrastructure build.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the modelling tools and techniques developed through this Project are intended to be made available to other gas networks and heat network operators. Providing evidence of cost savings to gas customers and heat network customers through the utilisation of multi-asset control was also considered to have the potential to open new competitive markets. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky because it will involve a complex data modelling exercise in combination with the development of new control methods. The Project proposes helping to address the decarbonisation of space and water heating in domestic and commercial settings. We agree that the use of community energy hubs proposed is novel. The individual technologies are well understood, and the Application

attempts to optimise them to provide cross vector energy which we agree is novel and risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have sufficient participation from the Project Partners in the Discovery Phase because the Project includes participation from the relevant specialisms required to deliver the work packages. We also agree with the comment from the Expert Assessors around the inclusion of the two Scottish councils and how they will be able to provide local place-based insight. The Project Partners are appropriate for the activities set out and to collect the viewpoints needed to progress the Project.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because the contribution being made by the Project Partners was above the minimum requirements, which helps give confidence that the Project as a whole is providing value for money. The day rates quoted are competitive with industry norms and are appropriate for the activities set out, which provides confidence that the Project is costed competitively. Overall, we agree that the balance of costs between Project Partners is sensible and justified by the proposed scope.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because there is a clear schedule of activities and milestones. Each work package is well described with an appropriate lead Project Partner. There is a clear ownership structure across the deliverables and the risk register is sufficiently detailed for the Discovery Phase activities set out.

Carnot Gas Plant**Table 49: Project Costs**

Cost type	Cost
Total eligible costs	£104,793
Total contribution	£10,841
Total SIF Funding requested	£93,952

Project description

The project is to develop a Carnot Gas Plant integrated with a heat network to provide efficiency improvements and cross-vector flexibility.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. Overall, the Project was considered to involve network innovation in the deployment and application of heat and network balancing, which was also considered innovative and risky. All stakeholders were considered credible and capable of delivering the activities set out. Project costs were considered to be clearly presented and realistic to achieve the outlined plan, and were considered to be costed competitively and to represent value for money. The work packages provided are brief but clearly presented.

It was noted that the Project's benefits and the assumptions around them could have been more clearly presented and more clearly aligned with existing projections.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider this Project to have addressed the Innovation Challenge because it proposes using developed technologies, combined in a novel way, to bring about cost reductions in the supply of heat and electricity as well as carbon reductions. The Project is also examining the integrating of heat networks for wider energy network management. This addresses the Innovation Challenge as it directly aligns with one of its core aims, which is to develop approaches to integrated planning in connecting decarbonised heat which reduces overall costs and timescales.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We consider the Project to have clearly identified potential to deliver a net benefit to gas consumers and electricity consumers because it has the potential to provide low-cost heat with reduced infrastructure. This represents the potential to deliver a net financial benefit to gas consumers. We also agree with the comment from the Expert Assessors that the Project could also benefit the energy systems by providing balancing and peaking options as well as carbon emission savings. The Project's benefits would have been strengthened if the Application more clearly outlined the assumptions and quantification metrics. However, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it introduces relatively novel components and configurations into an energy supply scheme to enhance efficiency and reduce costs. It is also providing balancing and peaking options alongside heat for consumers. We agree that the Project involves network innovation because it represents the potential to provide the innovative use of known equipment and systems which would be beneficial for the networks and energy consumers.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it is attempting to demonstrate a technical advance in energy conversion technology which is available to other energy suppliers to adopt free of any patent protection. We also agree with the comment from the Expert Assessors the comment that this has the potential to introduce new competitive markets. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because of its focus on introducing cryogenics into a conventional energy conversion technology, coupled with a complex control systems. We agree that is innovative and we note there is risk in the usage and combination of these technologies while seeking to maximise network and consumer benefits.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because the main Project Partners were considered to have expertise in the focus of the Project. We noted that the Project has a sufficient mix of stakeholders to ensure the range of users and applications are credible and applicable and for the activities set out.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and as being costed competitively because the day rates are competitive with industry norms and the Project costs presented are appropriate for the activities set out for the Discovery Phase. This provides confidence that the Project is providing value for money and is costed competitively. As a result, we agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because all the work packages are provided with a cost, resources and lead identified. The tasks are provided with a brief but clear description. Milestones and deliverables are clearly identified. The risk register is sufficiently detailed for this stage of the Project. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Electricity Projects selected for funding

RetroMeter

Table 50: Project Costs

Cost type	Cost
Total eligible costs	£164,877
Total contribution	£16,796
Total SIF Funding requested	£148,081

Project description

RetroMeter will provide and demonstrate a consistent methodology to accurately measure the energy and cost savings of retrofit energy efficiency measures, unlocking pay-for-performance financing, increasing uptake and leading to reduced costs for consumers and additional flexible services for the DNO.

Summary of Expert Assessors' feedback

All Expert Assessors recommended this Project for SIF Funding. The Project was considered an opportunity to design a framework and methodology for the nationwide implementation of energy efficiency improvements in the housing stock with the added benefit of opening up the retrofit market and provide a robust and data based financing method via energy suppliers so that consumers pay for the measures through savings in their energy bills.

The Project was considered to be clearly defined with milestones and outputs clearly articulated, and represent a net benefit to electricity consumers. The Project team was considered to have a good mix of skills relevant to the delivery of the Project. It was noted that providing further detail on how the DNO might utilise this information would have strengthened the Application. As well as how consumer behavioural responses may impact this Project. Overall, the Project was recommended for SIF Funding by all the Expert Assessors.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to address the Innovation Challenge because it aims to provide an innovative operational template for the upgrading of the national housing stock in a diverse population of homeowners, renters, private landlords, housing associations, councils and others. The Project involves the innovative use of data to establish efficacy and financial reward and so motivate implementation. We agree that this is aligned with the Innovation Challenge's aims of demonstrating coordination between flexibility and energy efficiency.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified a net benefit to electricity consumers. We agree that these will be in the form of reduced bills (financial benefit) and/or improved comfort through enabling energy efficiency upgrades for residential consumers in addition to unlocking new funding for retrofit opportunities. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation. This is because it has the potential to provide the financial and operational framework for networks to use and to feed new data into grid reinforcement decisions. This is a new approach to retrofits which may reduce overall demands on the grid. We agree that this involves network innovation because it could feed new data into grid reinforcement decision and could reduce overall demands on the network.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because it aims to enable energy efficiency measures to be undertaken more easily and efficiently. We agree with the Expert Assessors and do not consider there to be any distortion of the market proposed by the solution and the Project has communicated it will share its findings with other networks. As a result, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky. The approach to energy efficiency performance proposed by the Project is new, and feeding retrofit information into or linking it to Distribution Network Operator decision-making is novel and different. We note the feedback from the Expert Assessors that other projects have made similar attempts previously but have been unsuccessful. We agree that this adds an element of risk to the Project. Overall, we considered the Project to have innovative, novel and risky aims and the difficult nature of retrofit and attributing energy reductions to retrofit was noted.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase. This is because a network operator, a data expert, an energy efficiency promoter and a council are involved. We agree that the consortium has the appropriate composition and possesses the necessary skill sets for the activities set out. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to provide value for money and as being costed competitively because the Project's objectives are clearly outlined and that the Project demonstrates potential for benefit by both networks and consumers, with potential for significant benefits. We agree that the

Project's costs are reasonable for the Project scope and the ambitiousness of the activities set out. We also noted that the costs for the Project scope was reasonable for the activities set out as was the allocation to each Project Partner.

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.

We agree with the Expert Assessors and consider the Project to be well thought through with a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The work plan is well designed and achievable and the risks well mitigated. We also noted that the Project milestones are well defined and the majority of the work takes place in the first two thirds of the Project, which provides the Project with some flexibility. Overall, we consider the Project to have met this Eligibility Criteria.

LEO-N**Table 51: Project Costs**

Cost type	Cost
Total eligible costs	£157,506
Total contribution	£15,750
Total SIF Funding requested	£141,756

Project description

LEO-N is looking at how careful coordination of a new approach to decarbonising homes and businesses combined with coordinated local energy planning can accelerate net zero.

Summary of Expert Assessors' feedback

All Expert Assessors have agreed that this Project meets all eligibility criteria, and all have recommended this Project for funding. The application is relevant to the 'Accelerating decarbonisation of major demands' challenge as it explores building and community level decarbonisation pathway optimisation through a systems approach. This Project does not undermine the development of competitive markets. The Project Partners are considered to be sufficient for the Project because they hold the expertise for developing idea. The Project is also deemed good value for money and has given all Expert Assessors confidence it can be delivered in a timely manner.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge through the optimisation of supply and demand at the local, low voltage network level. This could engage more consumers in proactively

decarbonising, as well as optimising existing infrastructure and reducing reinforcement costs. This topic is aligned with one of the aims of the Innovation Challenge which is to demonstrate coordination between flexibility, energy efficiency and regional/local planning activities.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified the potential to deliver a net benefit to electricity consumers by reducing their energy demand, sharing resources at community level and reducing the need for network reinforcement. There are also opportunities for participation in flexibility and other services. This Project has set out its intention to explore new funding and financing options to deliver this and is focusing on developing new tools for community trading and sharing of energy. These approaches represent potential financial benefits as they could reduce the overall costs of the transition to net zero for consumers. We agree and consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because of its focus on the low voltage network level at the community level and on getting better use of existing infrastructure through flexibility responses to shifts in consumption patterns. We agree that this demonstrates network innovation because its approach of focusing on aggregating demand, making better use of local generation, flexibility trading, and reducing peak demands on the network through building fabric changes are new possibilities for networks.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because the Project is proposing developing new products and services for a nascent market and which

could play a significant role in a low carbon transition. The Project also has the potential to enhance the number of market actors by enabling more communities to trade with the network and with each other, whether for flexibility or capacity, leading to more competition.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it takes an innovative systems approach at the low voltage level to investigate and identify potential solutions that could help de-risk the net zero transition for consumers. It also aims to build new institutional arrangements. Both of these aspects of the Project are innovative. We note that the Project is also risky as it challenges existing network planning and requires changes in the approaches of both DNOs and local authorities to achieve success. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of Project Partners and stakeholders for the Discovery Phase activities because the expertise is suitable for developing the idea articulated, and includes a distribution network operator, energy system experts, a local community focused energy company, two local authorities and market experts. We agree that these stakeholders are key to the problem and proposed solution articulated in the Application.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and to be costed competitively because the funding is well balanced between the Project Partners and is appropriate and consistent with the scope of the Project set out. We also noted that day rates of one Project Partner were at the high end of expectations and industry norms, but with sufficient justification as the Project Partner is bringing subject matter expertise. Overall we consider the Project on the whole to be providing value for money and to be costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the milestones have been well articulated and developed, and the steps outlined are clear and flow logically. The risk register highlights many risks with mitigation showing the Project has been well thought through.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Tyseley Environmental Enterprise District**Table 52: Project Costs**

Cost type	Cost
Total eligible costs	£404,629
Total contribution	£259,413
Total SIF Funding requested	£145,216

Project description

This project is an investigation of how a complex, multi-vector energy system with significant local generation and storage can be developed to be optimally resilient and deliver best value to a mixed local community of industry and domestic consumers, alongside ongoing regeneration of the area.

Summary of Expert Assessors' feedback

All Expert Assessors recommended the Project for SIF Funding. This is because the Project brings forward cross-sector collaboration in the Tyseley area, where there are difficult technical, environmental and social challenges affecting the energy system. The challenges of grid constraints and fuel poverty in the area were noted by the Expert Assessors and the Project addresses the Innovation Challenge through local systems integration, which was also considered innovative and risky. It does this in an area of the city where solutions could generate meaningful new investment and regeneration, delivering a net benefit to consumers, and its focus was considered to involve network innovation. Overall, the Project was recommended for SIF Funding.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because the multi-vector approach is directly relevant to the Innovation Challenge as it addresses the difficult questions about routes to decarbonising major energy demands and focuses on regional and local energy planning activities. The Project also has the potential to provide valuable lessons for integration across heat, power, storage and transport at local scale. This could optimise infrastructure investments, improve flexibility in supply and increase efficiency. Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a net benefit to electricity consumers. The Project will benefit heat and electricity consumers through more effective use of existing resources, including assessment of options for heat network infrastructure using waste heat sources. We agree that this represents a potential benefit to a wide range of consumers through financial benefits including for fuel poor households, local businesses and the general benefit enhanced opportunity for economic growth in the green business space.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation. This is because the Project is examining the integration of heat, power and potentially hydrogen at local scale with the aim of improving resilience, affordability and assisting in decarbonisation. The Project is centred in an area with grid constraints which could be alleviated by improved flexibility. This Project has the potential to contribute additionally to this constraint area through making best use of local power generation, hydrogen, storage and heat network potentials. We agree that this focus involves network innovation.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to not be undermining the development of competitive markets. We noted that the Project

has the potential to open up new market opportunities for systems' technology components and competitive local services, as well as those for new clean business developments. Overall, the Project was considered to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We consider the Project to be innovative novel and risky. The Project is innovative because it seeks to integrate energy vectors, and network infrastructures at local scale to capture system efficiencies and to provide affordable, clean energy services. It is novel in organising practical collaboration between a wide range of cross-sector interests with necessary expertise in network operations, energy supply, academic knowledge of energy systems and scenario modelling, and local authority planning and development. We also note the risk in the Project because there have been numerous projects proposed in the privatised energy industry which have struggled because of the difficulties in obtaining agreement between the necessary participants required to make the scheme successful. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders. This is because the Project includes the stakeholders needed for effective sharing and generation of knowledge about progressing from components of a potential decarbonised system to integrated solutions. The Project also combines the expertise and project management skills of network operators with that of the local authority in urban development and regeneration, as well as the University of Birmingham and commercial operators' energy systems and markets expertise. We consider these stakeholders and their participation to be sufficient for the Discovery Phase activities set out.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to provide value for money and as being costed competitively. We consider the Project to represent value for money because it is focusing on an area of considerable difficulty in energy decarbonisation for heat and transport where the benefits would likely outweigh the costs of the Project. The costs are reasonable relative to the range, and scale, of tasks to be completed. We consider the Project to be costed competitively because it is expecting to employ wide-ranging knowledge from across the business and local government in addition to the inclusion of the free-of-cost academic involvement.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. This is because the Project plan demonstrates a breakdown of tasks with clear assignment of responsibilities to each Project Partner. We noted that the consortium should be capable of progressing in a timely manner, given the specified work packages against the timetable for completion, and consideration of risks and risk mitigation associated with the short timescales. Overall, we consider the Project to have met this Eligibility Criteria.

Planning Regional Infrastructure in a Digital Environment (PRIDE)**Table 53: Project Costs**

Cost type	Cost
Total eligible costs	£145,159
Total contribution	£14,518
Total SIF Funding requested	£130,641

Project description

PRIDE examines how using a digital twin to visualise and model changes to electricity, heat, gas, transport, digital and water infrastructure, can make interdependencies, market opportunities and business cases more visible, therefore ensuring the investment decisions enabling decarbonisation of major loads are efficient and optimised.

Summary of Expert Assessors' feedback

All of the Expert Assessors recommended this Project be approved for SIF Funding. They considered the Project to be investigating a problem which has the potential to reduce costs for consumers and users of the network, and the Project's approach was considered to involve network innovation and also involve novel and risky approaches. Furthermore, the Project Partners were considered to be reputable and experienced, and with the Project plan, provided the Expert Assessors with confidence that the Project would be able to progress in a timely manner in the Discovery Phase. The Project was also considered to represent a potential net benefit to consumers and was considered to be costed competitively and represent value for money.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to deliver a holistic solution for decarbonisation at large public sector sites and at a lower cost to consumers. We agree that this focus aligns with one of the Innovation Challenge's core aims of a more efficient and effective integration of technologies. We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified a potential to deliver a net benefit to electricity consumers via financial benefits. We noted that the Project has the potential to bring overall costs down for consumers as the solution proposed by the Project can reduce the need for network reinforcement. This represents a clearly identified potential to deliver a net benefit to electricity consumers via financial benefits and we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because the Project is reimagining the process for new connections in an innovative approach. Its approach to the development of a digital twin was considered to be an addition to the existing process and this focus was considered to involve network innovation. Both of these aspects of the Project could lead to swifter and more efficient and cost effective network connections, which would be an innovation on the current process.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because the Project's approach to the development of a digital twin for various networks and utilities to be encouraging competitive markets and market opportunities. Furthermore, we

also noted that the proposed solution would likely be replicable with other networks, which could lead to additional market opportunities.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because the Project's approach of developing a digital twin for various utilities and networks has not been done before and relies on the cooperation of a wide range of stakeholders. We agree that this approach is both innovative and risky. Furthermore, we also noted that the Project was novel as it alters the consideration and processes for network connection applications.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have participation from a sufficient range of stakeholders for the activities described in the Discovery Phase. We noted the commitment to receiving other stakeholder feedback via events and the participation of the NHS and York City Council as being beneficial for the Project as it contributes to more viewpoints being considered.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project's costs to be providing value for money and as being costed competitively because the costs provided by the Funding Party and Project Partners were within a suitable range for the activities proposed for the Discovery Phase and against industry norms. Furthermore, the Project has the potential to deliver benefits to consumers and to provide value for money against the current approach. As a result, we consider the Project's overall costs to be providing value for money and to be costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have a sufficiently robust methodology for it to be able to progress in a timely manner in the

Discovery Phase. The deliverables and Project plan for Discovery Phase are clearly presented and demonstrate a reasonable approach to the activities set out for the Discovery Phase. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Inform**Table 54: Project Costs**

Cost type	Cost
Total eligible costs	£144,506
Total contribution	£21,310
Total SIF Funding requested	£123,196

Project description

Inform provides an automated energy use and connections estimator to accelerate the decarbonisation of larger sites/non-domestic buildings. This better informs initial scheme development planning.

Summary of Expert Assessors' feedback

All Expert Assessors recommended this Project for SIF Funding. The Application was considered to have addressed the Innovation Challenge as it improves data availability to support quicker and more efficient decisions for large energy sites during the development stage, a key focus of the Innovation Challenge. The Project has outlined how it will provide additionality to existing work in this space, thereby reducing duplication and providing value for money and has the potential to deliver both financial and environment benefits to end users.

The Project was also considered to be good value for money and gave all Expert Assessors confidence it can be delivered in a timely manner.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to accelerate and support

major sites installation for low carbon technologies (LCTS) and gain connections faster whilst minimising costs. We agree that this aligns with one of the main aims of the Innovation Challenge which is to develop approaches which reduce overall costs and reduce timescales related to decarbonised heat and transport. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers and gas consumers because the solution could reduce the need for network reinforcement, particularly given the overall assessment of the estate when looking at demand as well as supply. The proposed solution could result in system costs savings for consumers.

We agree that the financial and environmental benefits were clearly outlined. We also agree with the comment from the Expert Assessors that a greater level of quantification of the potential benefits would have strengthened the Application.

Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is exploring how to enhance the existing connection process to allow larger sites and non-domestic buildings with more informed data on the network connections and energy use requirements during the development and planning stage. We agree with the Expert Assessors and consider the Project's focus to involve network innovation because it is re-imagining the process for gaining connections and proposing potential efficiencies.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it has the potential to facilitate new markets and outcomes which will likely be applicable to other distribution network operators. We also agree with the comment from the Expert Assessors that the Project's approach could result in the facilitation of new competitive markets. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel because it is exploring a more holistic and informed connection process for the development of larger energy sites. We agree with the Expert Assessors and consider this to be novel as the Project's innovative focus could provide more network efficiency in the network connection process. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met. We agree that the Project Partners and stakeholders are sufficient for the range of activities set out for the Discovery Phase. We noted favourably the inclusion of York City Council and NHS and the planned engagement with other stakeholders via two events.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because the labour costs are fair compared to industry norms and for the activities set out. We agree with the Expert Assessors and consider the Project to have the potential to deliver benefits which outweigh the costs of the Project and, as such, represents value for money. We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the work packages and associated deliverables within the plan are clear, and the consortium has a good reputation for project execution. The risk management approach is appropriate but additional details would have strengthened the Application. Overall, we consider the Project to have met this Eligibility Criteria.

Proportional Investment of Networks in Energy Efficiency Retrofit (PIONEER)**Table 55: Project Costs**

Cost type	Cost
Total eligible costs	£143,179
Total contribution	£17,733
Total SIF Funding requested	£125,446

Project description

The project aims to develop commercial models by which the DNOs can provide funding for thermal energy efficiency (EE) measures and to demonstrate through pre and post retrofit monitoring the impact these measures have on network loads.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding and the majority of Expert Assessors have suggested the Project has met the Eligibility Criteria. Overall, the Project was considered to describe a novel approach to reducing renewable curtailment by co-locating hydrogen electrolyzers near to sources of district heating demand. This was considered to involve network innovation and be an innovative approach with risk to it. The potential cost savings of reduced renewable curtailment and reduced network infrastructure build was also considered to potentially provide significant financial benefits to consumers as well as environmental benefits.

The majority of the Expert Assessors considered the Project to be well structured, bringing together a strong group of relevant stakeholders and Project Partners for the activities described, though representation from end users would have strengthened the Application. The Project was considered to not undermine the development of competitive markets and was considered to represent good value for money.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because it seeks to demonstrate the potential of co-locating hydrogen electrolyzers close to potential sites for district heating where there are current issues with renewable generation being constrained. We agree that this is aligned with one of the aims of the Innovation Challenge, which is to demonstrate coordination between flexibility and local/regional planning in a way which reduces costs and improves consumer experience for decarbonisation. We also agree with the comment from the Expert Assessors that greater details would have strengthened the Application.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria because the enhanced efficiency of the proposed combination of hydrogen production with use of waste heat will reduce the price of hydrogen and extend its possible uses, resulting in possible financial benefits for gas consumers. We agree with the Expert Assessors that more clearly outlined benefits to consumers would have strengthened the Application. Overall, however, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it is examining the use of localised hydrogen production for multiple uses and electrolyser waste heat to provide district heating. This could reduce the cost of hydrogen supply to the consumer and increase its availability. The Project is also seeking to improve the utilisation of existing network infrastructure and to reduce the requirement for new network infrastructure build. Together, these were considered to involve network innovation because the Project

is examining how to increase the overall efficiency of the network with a focus on technologies and technology pairings.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the majority of the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because the proposed model draws together different energy vectors which do not currently compete with one another. We note that the Project is seeking to enable more solutions to provide demand-side alternatives to network reinforcement, which could lead to new competition opportunities. We agree with the Expert Assessors that the Project could have more clearly articulated how it will avoid favouring one technology route over others, but, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it was noted that the Project would need to overcome barriers in adding the district heating element, a market which is not yet well developed. We also noted that the Project also assumes a reasonable uptake of local hydrogen powered vehicles which is currently not assured and represents risk.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to have representation from a sufficient range of stakeholders and Project Partners for the Discovery Phase because their range of skills are complementary to ensure Project delivery. While greater representation from the end users would have strengthened the Application, we agree that the inclusion of energy distributors, a local authority, and a relevant consultancy are sufficient for the activities set out.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and as being costed competitively because the Project Partner cost allocation has clearly been designed to drive effective resource management. We also noted the work packages are likely to deliver outcomes which can be reused by other network operators and relevant stakeholders, representing value for money. While greater justification for the higher than anticipated Project costs for the consultancy Project Partner would have strengthened the Application, we consider them to be an important part of the Project consortium and consider the Project's overall costs to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project management information provided is robust. The gantt chart provides clarity over the relevant milestones and deliverables and the Project Partners have a reputation of project delivery. We noted that the milestones and risks assessed indicated a clear understanding of Project delivery.

Indus**Table 56: Project Costs**

Cost type	Cost
Total eligible costs	£171,417
Total contribution	£30,068
Total SIF Funding requested	£141,349

Project description

Indus builds on the successful concept development project in the Black Country and will develop and deploy a network-led commercial business model that optimises the energy use of mid-sized industrial parks, making electrification of industrial heat more economic and optimising the use of flexibility and onsite generation thus accelerating decarbonisation of this significant source of heat and energy demand.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding as the majority of the Expert Assessors considered the Project to have met each of the Eligibility Criteria. The Project proposes exploring a new approach to network capacity allocation and aims to develop approaches for flexibility and demand side response, which was considered by the Expert Assessors to involve network innovation, be innovative and novel. The Project was also considered by the majority of the Expert Assessors to represent good value for money as it has been costed reasonably and presents the potential for significant benefits for consumers. The proposal was considered to be well presented, and the proposed methodology was considered by the majority of the Expert Assessors to be clearly articulated.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to reduce the demand for increased network capacity by considering network impacts from approaches to effectively facilitate, manage, and integrate multiple demands and demand-side solutions. We agree that the Project addresses the Innovation Challenge because it aligns with one of the core aims, which is to integrate energy efficiency together with flexibility to reduce costs of heat demands.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers through a reduction in costs for network capacity building and maintenance, more effective use of existing network capacity, and more effective management and integration of multiple demands and demand-side solutions in an industrial site. We agree with the Expert Assessors that these represent the potential to deliver a net benefit to electricity consumers through financial benefits.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it provides a new approach to network capacity allocation and aims to develop options which consider network impacts to effectively facilitate, manage, and integrate multiple demands and demand-side solutions. This involves network innovation because this proposed approach is more proactive and possibly more efficient than existing planning approaches.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because it proposes a new approach to network capacity allocation and aims to develop options which

consider network impacts to effectively facilitate, manage, and integrate multiple demands and demand-side solutions. This could facilitate new markets, especially for industrial site development, with outcomes which will likely be applicable to other network operators. We agree that the Project could have more clearly articulated how its proposed solution will impact or interact with the current practices for network planning. However, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because the network focused approach to industrial site development is new and novel and innovative because there have been few attempts by a network operator to take the approach set out by the Project.

We note the comment from one Expert Assessor that the innovation and riskiness of the Project is in the approach rather than the development of new technologies. Nonetheless, we consider the Project's proposed approach and articulated solution to be innovative, novel and risky because it proposes a new approach to network development and management.

Overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the majority of the Expert Assessors and consider the Project to have participation from a sufficient range of Project Partners and stakeholders for the Discovery Phase because of the inclusion of a local authority, an industrial park infrastructure specialist as well as other expertise which will support the delivery. These stakeholders align with the activities set out for the Discovery Phase.

We also agree with the comment from the Expert Assessors that greater participation from local authorities and commercial parties would have strengthened the Application. However, overall, we consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because the Project costs were appropriate compared to industry norms and for the Discovery Phase activities set out. The balance of costs among Project Partners is reasonable and we agree that the potential cost savings of the proposed could be greater than the costs of the Project. We also agree that the Application could have been enhanced by providing greater details about alternative approaches that are being considered. Overall, however, we consider the Project's costs to be providing value for money and to have been costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project plan and milestones have been well thought through and are clearly articulated. The Project plan and risk register clearly align and complement each other and give confidence that the Project will be capable of progressing in a timely manner.

Heatropolis

Table 57: Project Costs

Cost type	Cost
Total eligible costs	£177,993
Total contribution	£31,798
Total SIF Funding requested	£146,195

Project description

The Heatropolis project aims to accelerate the decarbonisation of existing heat networks by developing, deploying, and testing a data-driven framework that will deliver a smarter, more flexible, and integrated energy system. The framework will maximise the use of existing electricity network capacity while minimising the need for network reinforcement, the curtailment of renewable generation, and cascading costs to customers.

Summary of Expert Assessors' feedback

All Expert Assessors considered the Project to have meet all Eligibility Criteria, and all have recommended this Project for SIF Funding. The Application is relevant to the Innovation Challenge as it has clear objectives to accelerate decarbonisation of heat through innovation in integrated heat and power network planning and operation. The Project has identified an innovative approach to tackling the decarbonisation of a major energy demand while seeking to achieve socialised cost savings and financial benefits for consumers. It was not considered to undermine the development of competitive markets and has the potential to encourage additional competition. The Project plan was considered well thought through, structured and to bring together a strong group of relevant stakeholders. The Project was also considered to represent good value for money and as being costed competitively relative to the activities set out for the Discovery Phase and the costs for the Project Partners.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it proposes analysis of heat network transitions from fossil fuel gas to electricity through coordinated planning to improve load management on electricity networks, reducing costs and carbon emissions. We agree that the Project's findings could contribute to more effective and efficient green heat network development with lower whole system costs. We also agree that this addresses the Innovation Challenge because it aligns with one of the aims, which is focused on developing approaches to integrated planning and connecting decarbonised solutions which reduce overall costs and timescales.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers because it could deliver more efficient and affordable planning for development and re-fit of heat networks at lower overall system costs. This would benefit electricity consumers through potentially more affordable heat services, resulting in a financial benefit for consumers including vulnerable households. We note that the Project could also contribute to managing network constraints, optimising use of renewable power and minimising power cuts in areas with heat networks, all of which could result in more effective management of the network and financial benefits to energy consumers.

Eligibility Criterion 3: Projects must involve network innovation.

We consider this Project to involve network innovation because it is investigating the impact of smart controls and flexibility to reduce potential network constraints or congestion arising from decarbonising heat networks. It brings network developers and operators in heat and power sectors together to solve problems of uncoordinated planning, which typically results in higher costs and less secure

services. The network innovation was considered notable in its proposed use of digital control systems to plan network investments for greater efficiency, and to ensure greater visibility of network flows, and cross-network coordination in operations. We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to be undermining the development of competitive markets because there currently isn't a market-based framework which facilitates the long-term electricity network infrastructure planning coupled with the decarbonisation of heat networks. The learnings from the Project have the potential to lead to the development of new products and services to support the creation of mature low carbon heat markets. In addition, the Project states that findings, frameworks, connection services and incentives arising from and specified through the Project will be available to all market participants. This intention will help to ensure that competitive markets are developed or supported by the Project. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because it aims to develop new technical-economic methods with multi-party coordination to co-optimize heat network and electricity distribution network management. It is innovative in taking account of the network capacity constraints and working in collaboration with the distribution network operator planners and the local authority. The use of new low carbon heat network assets and smart controls to optimise the design to the user needs and network constraints also adds a high level of technical risk. Additionally, the development of commercial models which can support the decarbonisation of a major energy demand will rely on multiple forecasting techniques and algorithm developments, which is risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because they have direct experience of operating electricity networks, heat networks and developing smart control techniques to improve the efficiency of heat networks. The participation of the relevant local government organisation provides confidence in the provision of place-based guidance and local engagement and was noted favourably. The Project stakeholders also have a strong track record of project delivery.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and to be costed competitively because the costs for each Project Partner are detailed in relation to the main division of responsibilities and deliverables, including sub-contracting, and risk management. The costs are reasonable compared to industry norms and for the activities set out, with considerably more than the minimum additional contribution for the Discovery Phase. This helps provide confidence that the Project is providing value for money and is costed competitively. As a result, we consider the Project to be providing value for money and to be costed competitively.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because there is a clear work plan which allocates specific tasks and costs to each Project Partner, and which includes the necessary deadlines. The risk register is appropriate to the work set out, and mitigation actions are stated clearly. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Full Circle

Table 58: Project Costs

Cost type	Cost
Total eligible costs	£122,574
Total contribution	£14,121
Total SIF Funding requested	£108,453

Project description

Full Circle aims to make low-carbon heating affordable for vulnerable and hard to reach customers by developing a commercial and operational framework for heat network developers, property developers and Energy Service Companies (ESCos) to recover low-grade waste heat from DNO transformers to improve the efficiencies of their heat networks and reduce their costs.

Summary of Expert Assessors' feedback

All Expert Assessors agreed that this Project meets all Eligibility Criteria, and all recommended this Project for SIF Funding. The Application was considered relevant to the Innovation Challenge as it aims to establish the feasibility of utilising low grade waste heat from transformer sites to pre-energise large heat networks in dense urban environments. This was also considered to involve network innovation and be an innovative, novel and risky approach. It was also recognised that the Project could open a new market for this kind of heat being utilised and would therefore not be undermining the development of competitive markets.

The Project plan was considered well-constructed to enable delivery of the Project to a good standard. The Project includes a sufficient range of stakeholders and is also deemed good value for money with Project Partners costs costed competitively.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it proposes investigating the use of low grade waste heat from transformer sites as a source of energy for heat networks in dense, urban areas. We agree that a specific use case for low income and vulnerable consumers is proposed, which was noted favourably. The Project's focus on trying to integrate heat networks into supporting wider network management was considered to be aligned with one of the aims of the Innovation Challenge and we agree with the Expert Assessors that the Project met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified potential to deliver a net benefit to electricity consumers because the Project is focused on utilising excess heat from DNO substations in heat networks to deliver heat to consumers. The provision of this heat represents the potential to reduce consumer bills thereby delivering a potential financial benefit. In addition, there are other benefits associated with reduction in grid reinforcement by reducing electricity demand from heat networks, such as a reduction in operational and maintenance costs through life extension assets by better heat management. We recognised that this also presents a clearly identified potential to deliver a net benefit to electricity consumers. We note that the Application would have been strengthened by including details on the potential number of sites across the UK where this approach could be implemented. However, overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it plans to undertake a real-life assessment of the feasibility of utilising excess transformer heat into a heat network. In addition, the Project has the potential to provide innovation in both the heat network design and operation and in the management of transformer sites and network reinforcement. We agree

with the Expert Assessors and consider the Project to have met the Eligibility Criteria because this involves network innovation beyond the general business as usual practices.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider the Project to be undermining the development of competitive markets because it will explore the utilisation of excess transformer heat and how it can be fed into heat networks. The Project's proposed solution has the potential to open a new market for this kind of excess heat being utilised and the solution could also be replicable across other network operators. We note positively the Project's intention to disseminate its learnings. As a result we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and novel through both the use of low grade waste heat and in the development of a replicable commercial and cooperative framework. We agree that this would potentially require new commercial and operational frameworks to be established across multiple stakeholder boundaries, and as a result, we consider this innovative in its approach. We also note the Project has both technical and commercial risk that is part of business as usual activities for the networks.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because it includes a DNO, an engineering consultancy, a gas distribution network and developer of heat networks and a council. In addition, a subcontractor is involved who has heat network expertise. We agree that this mix of stakeholders is sufficient for the Discovery Phase activities set out.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and as being costed competitively because overall Project costs are justified with day rates being fair market value compared to industry norms. The split of costs between the Project Partners is consistent with the Project delivery plans but it was noted that the funds for one Project Partner were higher than anticipated without justification. Greater justification for these higher than anticipated costs would have strengthened the Application. However, overall, we consider the Project's costs to be providing value for money and to be costed competitively. We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence to the Expert Assessors that it will be capable of progressing in a timely manner because the Project plan is well thought through and articulated to enable delivery of the Project during the Discovery Phase. All required resources have been identified and were considered clear, and the risk register is clearly set out.

Lightspeed

Table 59: Project Costs

Cost type	Cost
Total eligible costs	£170,290
Total contribution	£29,738
Total SIF Funding requested	£140,552

Project description

To help with the rapid increase in the UK's public EV charging infrastructure that is required to meet expected consumer demand, especially for the 40% of customers without a driveway, this solution aims to develop a bidirectional lamppost-based EV charging solution that would support both smart charging and V2G capabilities, while providing faster EV charging at 7 -- 22 kW, without requiring major network upgrades.

Summary of Expert Assessors' feedback

All Expert Assessors have recommended this Project for SIF Funding. All Eligibility Criteria has been met. The Application was considered relevant to the Innovation Challenge as it aims to explore the facilitation of rapid roll out of on-street smart charging infrastructure, with minimal network reinforcements. This would provide significant benefits to networks and would also remove a barrier for EV adoption to those who do not have access to off-street parking. The Project's proposed solution and focus was also considered to involve network innovation because of its focus on including bi-directional charging solutions, which was also considered to be innovative and risky.

The Application was considered to be well thought through with clearly outlined deliverables and the Project brings together a strong group of relevant stakeholders. The Project was also considered to represent good value for money and was considered to have been costed competitively.

Ofgem funding decision: SIF Funding approved

Ofgem agrees with the Expert Assessor's recommendations and approves SIF Funding.

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has the potential to accelerate the deployment of fast, on-street, smart charging infrastructure and facilitate increased EV adoption for those without off-street parking where a charger is not available. We agree that this is directly related to one of the aims of the Innovation Challenge, which is focused on developing approaches to planning and connecting of decarbonised transport that reduces costs and timescales. We consider this focus and the proposed solution to have addressed the Innovation Challenge and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified the potential to deliver a net benefit to electricity consumers through reduced costs associated with infrastructure roll-out, reduced network costs, and providing charging infrastructure for potential EV users who do not have access to street charging. This has the potential to result in lower network costs due to more efficient network management, but also in supporting a wider integration of renewables in the overall energy system. This represents the potential for financial benefits for consumers.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because it explores the development of a DC converter at the point of connection which would enable the roll-out of fast, on-street charging with minimal network reinforcement. This would facilitate dynamic power and energy management and enable flexibility services. We agree that this involves network innovation because it is not part of usual network planning and represents potential benefits for consumers and networks. We also agree with the comment

from the Expert Assessors that the Application would have been strengthened if it more clearly articulated whether the proposed solution would also entail installing dedicated battery storage and the cost implications of that.

However, overall, we consider this Project to have met the Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because the Project has the potential to unlock additional flexibility resources that would improve competition in flexibility markets. This could lead to more flexibility opportunities for consumers and flexibility participants, thereby resulting in the development of competitive markets. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We consider the Project to be taking a novel approach to installing EV chargers in lampposts, which also agree is innovative. We also agree with the comment from the Expert Assessors that there is risk involved in the technical and commercial aspects of the solution that is yet to be developed. The Project also proposes the adaptation of existing infrastructure to house a novel DC to DC system which could result in increased potential for network benefits, thereby demonstrating innovation.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because the Project Partners include relevant and diverse opportunities for stakeholder input, including from technology and customer representation with the local authority. We note favourably the plans in the work plan to further engage with other stakeholders, including EV owners. We agree with the Expert Assessors and consider the Project to have met the Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money and be costed competitively because there is a sufficient balance of resources across different Project Partners and work packages along with partner contributions. The Project costs are also clearly linked to deliverables and are reasonable for the activities set out and compared to industry norms. This provides confidence that the Project is providing value for money and is costed competitively. We consider the Project to have met this Eligibility Criteria

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because it has identified key milestones and deliverables, and it has identified risks in timescales with mitigation measures suggested. The scale of innovation was considered to be matched to the resources and schedule for the Discovery Phase and the work packages are clearly linked to other aspects of the Project, demonstrating a well thought through Project. We consider the Project to have met this Eligibility Criteria.

Park & Flex**Table 60: Project Costs**

Cost type	Cost
Total eligible costs	£121,500
Total contribution	£12,946
Total SIF Funding requested	£108,554

Project description

Park & Flex will explore the current and future opportunity for the provision of flexibility services from V2X enabled EVs in car parks and the EV and network infrastructure required to do so, working with stakeholders to develop and test real-world flexibility products and customer propositions. The outcome will be a roadmap showing who is best placed to address any barriers to unlocking the untapped potential of this resource.

Summary of Expert Assessors' feedback

The Expert Assessors considered the Project to have the potential to unlock value and result in financial benefits for a variety of customers and stakeholders including car park operators, local authorities, energy networks, car park users and energy customers. The Project was considered to involve network innovation because it addresses the provision of flexibility from electrified car parks, which requires novel technical and commercial arrangements that have not been developed before. This approach was also considered to be innovative, novel and risky because it focuses on an area which has not been well explored in the UK to date.

The Expert Assessors also considered the Project to have been costed competitively because the funding requested, although unbalanced towards one Project Partner, was aligned with industry norms. The Expert Assessors also noted that they had confidence the Project would be capable of progressing in a timely manner because the Project plan, milestones, and risks were clearly articulated and well thought through.

Ofgem funding decision: SIF Funding approved

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have met the Innovation Challenge because it will help to provide insights on the challenge area through the deployment of “Vehicle 2 Grid” in public car parks and exploring how these can be used to test flexibility products and customer propositions. We agree with the Expert Assessors that this is directly related to one of the aims of the Innovation Challenge and we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have identified a potential benefit to deliver a net benefit to electricity consumers because it will contribute primarily towards a reduction in cost of reinforcement and more efficient network operation due to more flexibility becoming available. We agree that this has the potential to result in lower bills for consumers compared to the counterfactual by potentially reducing network costs through avoiding spending on reinforcement, thereby resulting in a financial benefit. Overall, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because the Project is examining how providing additional flexibility resources to enable system operators to more effectively facilitate, manage, and integrate multiple demands and demand-side solutions. It provides an avenue to investigate the provision of flexibility from electrified car parks, which requires novel technical and commercial arrangements and involves network innovation beyond business as usual practices.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and consider the Project to not be undermining the development of competitive markets because it will disseminate data and insights of the Project's outputs, which could support increased support in the space. We note the Project may also contribute to enhanced local flexibility markets which would mean increased competition in the market. Overall, we do not consider the Project to undermine the development of competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky because it proposes developing insights and access to a novel new form of demand side response and develop new flexibility products and market mechanisms to access this resource, which is innovation beyond business as usual. The proposed development and implementation of the commercial arrangements are novel and risky as there not been a study of this kind undertaken in the United Kingdom. We consider the Project to have meet this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider the Project to include participation from a sufficient range of stakeholders for the Discovery Phase because the Project has the appropriate experience for Project delivery, including V2X technology providers, specialist energy sector consultants, local government to provide insight into London's park operators and a DNO. We agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to provide value for money. The Project offers value for money because it has the potential to unlock flexibility, opening up new revenue streams and reducing network costs. We agree with the Expert Assessors who noted that although the Project is costed competitively, the costs are tilted towards one Project Partner in particular. The

justification for this could have been stronger. We also agree that the costs of this Project Partner are aligned with industry norms, which gives confidence that the Project is costed competitively. As a result, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to be well thought through and to have a robust methodology that gives confidence it will be capable of progressing in a timely manner because a clear Project plan is provided outlining major activities, milestones and deliverables, which have been appointed to key resources. The interdependencies and risks have also been considered and the set of deliverables and milestones should allow for efficient progress monitoring. Overall, the Project was considered to have met this this Eligibility Criteria.

Heat Risers

Table 61: Project Costs

Cost type	Cost
Total eligible costs	£123,080.00
Total contribution	£30,739.00
Total SIF Funding requested	£92,341.00

Project description

Heat Risers aims to accelerate the decarbonisation of multi-occupancy buildings and reduce costs for all using whole building solutions -- working with market participants, investors, and stakeholders to develop viable routes to market, and investigate the incentives and funding mechanisms required.

Summary of Expert Assessors' feedback

The majority of the Expert Assessors recommended this Project for SIF Funding. Overall, the Project was considered novel and to have addressed a complex and sizeable market. Multiple occupancy buildings can be retrofitted more easily and more effectively when considered as a whole building solution rather than individual dwellings. The distribution network operator will explore novel network incentives and potential new services. It could result in lower energy demand per consumer and less network impact & disruption. Overall, the Project management methods referenced are robust and the Expert Assessors had confidence that the Project offers value for money and is costed competitively.

One Expert Assessor did not recommend the Project for SIF Funding due to the justification of the SIF programme being limited and noted that the Application would have been strengthened from more spread out involvement or leadership amongst the Project Partners and Funding Party.

Ofgem funding decision: SIF Funding approved

Ofgem assessment of Application

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it has potential to deliver a novel approach to reducing connection costs and timescales for decarbonised whole building solutions. Multiple occupancy buildings offer a different route for retrofits when considered as a whole building solution when compared to individual dwellings. The Funding Party has outlined its intention to explore novel network incentives and potential new services that favour the uptake of whole-building solutions and could result in lower energy demand per consumer and less network impact & disruption.

We considered this to be aligned with two of the main aims of the Innovation Challenge and we therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider this Project to have clearly identified the potential to deliver a net benefit to electricity consumers because it has the potential to deliver reduced connection costs associated with a whole building decarbonisation solution. The proposed solution is seeking to support the delivery of more efficient low carbon heat solutions which could reduce electricity consumers bills, thereby resulting in a financial benefit to consumers.

We noted that the effectiveness of the Project's proposed solution and the benefits tied to it hinge on there being no delay in upgrading some properties by ensuring the latter is attractive enough to customers and the network is capable of delivering equitably. We agree with the Expert Assessors and consider that greater consideration of this and the timescales associated with the proposed solution would have strengthened the Application.

Overall, however, we consider the Project to have addressed this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with Expert Assessors and consider this Project to involve network innovation because it is seeking to enable an improved electricity connection process for whole building solutions. We agree that this involves network innovation is a novel approach as retrofit decarbonisation efforts are normally

undertaken on an individual premise-by-premise approach in comparison to a whole building approach. We note and agree with the comment from the Expert Assessors that the Application would have been strengthened by providing greater evidence of how the Project's proposed solution will lead to the network innovation being incorporated in business as usual.

Overall, however, we consider the Project's focus to whole building retrofits to involve network innovation beyond the business as usual innovation approach.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We agree with the Expert Assessors and do not consider this Project to be undermining the development of competitive markets because the Project has outlined how the development of a whole building decarbonisation connection solution could stimulate the market for whole building low carbon heat solutions. We note this has the potential to support the development of competitive markets and we do not consider it to be undermining the development of any competitive markets. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative and risky because of the complexities associated with the ownership framework for multi-occupancy buildings (MOB) and the challenges associated with designing whole building solutions in comparison to individual premise solutions. We note there are additional challenges associated with potentially migrating decision making processes away from individual households and towards a centralised decision-making body. As a result, we consider the Project to be innovative and risky.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We agree with the Expert Assessors and consider this Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because there is representation from local government with a direct interest in multi-occupancy buildings, technical expertise in low carbon heat control and

energy programme delivery experience. The stakeholders involved also provide confidence in Project delivery.

We note and agree with the Expert Assessors that stakeholders in the Project would have been strengthened with the inclusion of a service supplier and legal representatives in the consortium as they could provide a consumer-facing perspective to the Project.

However, overall, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project to be delivering value for money because the overall Project costs were considered appropriate for the activities set out for the Discovery Phase and the benefits of the proposed solution have the potential to outweigh the costs of the Project. While one Project Partner has higher than anticipated costs we note positively the contribution made by the consortia and consider the Project, as a result of the contribution, to be costed competitively. While we note the higher than anticipated costs of one Project Partner, we consider the Project's deliverables to be reasonably costed overall when considered on a project level and to provide confidence that the Project is costed competitively and is providing value. We also note positively the contribution from the Project consortia as it exceeds the minimum contribution amount. As a result, we consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the stakeholders selected have strong track records in project delivery. The Project management methods referenced are robust and the risk register provided is thorough, and the Project has a well thought through Project plan with clear milestones and deliverables.

Watt Heat**Table 62: Project Costs**

Cost type	Cost
Total eligible costs	£109,160
Total contribution	£22,463
Total SIF Funding requested	£86,697

Project description

Watt Heat aims to accelerate the decarbonisation of residential heat and reduce costs for all by stimulating the market for greater demand flexibility through heat storage -- working with market participants, investors, and stakeholders to develop the flexibility products required to share the benefits that these technologies can deliver.

Summary of Expert Assessors' feedback

The Expert Assessors considered the Project to be examining a Problem directly related to the Innovation Challenge and the approach articulated by the Project was considered innovative, novel and risky. The Project was also considered to have a sufficiently robust methodology which gave the Expert Assessors confidence that the Project would be capable of progressing. The Expert Assessors also considered the Project to be providing value for money and be costed competitively, and noted positively the contribution from the Funding Party. The Expert Assessors did note that the Application would have been strengthened if more detail on how other related approaches that were informing this Project was included. However, the Expert Assessors considered the Project to have a sufficiently detailed Project plan and methodology to have confidence it can progress in a timely manner.

Ofgem funding decision: SIF Funding approved**Ofgem assessment of Application**

Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.

We agree with the Expert Assessors and consider the Project to have addressed the Innovation Challenge because it is examining the potential role of heat storage assets to provide flexibility within domestic settings and support networks. This addresses the Innovation Challenge because the Project's focus on flexibility could help in the decarbonisation of major demands and is directly related to one of the Innovation Challenge's main aims of integrating energy efficiency with flexibility. We therefore consider the Project to have met the Innovation Challenge and consider it to have met this Eligibility Criteria.

Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers (whomever is paying for the innovation).

We agree with the Expert Assessors and consider the Project to have clearly identified the potential to deliver a net benefit to electricity consumers via financial benefits as the Project's focus on flexibility could reduce the need for network reinforcement and introduce new revenues through time of use tariffs. This represents the potential for cost savings and potential for revenue generation opportunities for electricity consumers. As a result, we consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 3: Projects must involve network innovation.

We agree with the Expert Assessors and consider the Project to involve network innovation because the Project is focusing on an innovative progression approach to current network practice (technical solutions for flexibility in shifting the heat load to avoid congestion on the network at peak times). The Project's focus on this area of reducing peak and load congestion involves network innovation beyond business as usual because it is challenging existing networks practices and examining an alternative approach to improve network operation and efficiency. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 4: Projects must not undermine the development of competitive markets.

We do not consider the Project to be undermining the development of competitive markets because the Project's focus on flexibility has the potential to introduce new

market incentives and revenue streams for electricity consumers and network users. We also noted that the roll-out of heat flexibility solutions will be open to markets and therefore a Project like this could lead to the stimulation and development of new competitive markets.

Eligibility Criterion 5: Projects must be innovative, novel and/or risky.

We agree with the Expert Assessors and consider the Project to be innovative, novel and risky. The Project is innovative and novel because it is examining a topic which presents an opportunity to stimulate market demand for flexibility through heat storage and because this isn't a focus area where many solutions or routes currently exist. As a result, the Project also demonstrates risk because the technical solutions have not yet been deeply examined or demonstrated and the Project is among the first of its kind examining this topic. We therefore consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 6: Projects must include participation from a range of stakeholders.

We consider the Project to have participation from an appropriate range of stakeholders. We agree with the Expert Assessors who noted that primary delivery of the Project would be from an energy consultancy and noted that more leadership from the Funding Party would have strengthened the Application. However, for the activities set out, we consider the Project Partners and stakeholders to be sufficient. We consider the Project to have met this Eligibility Criteria.

Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

We agree with the Expert Assessors and consider the Project's overall costs to be reasonable for the Discovery Phase activities set out and considered the Project to provide value for money with the potential value of its proposed solution. While we note the comment from the Expert Assessors that the costs for one of the Project Partners was higher than anticipated, we also note positively the contribution from the Funding Party which gives confidence that the Project is costed competitively. We also note that the contribution from the Project consortia exceeds the minimum

contribution amount and we consider the Project's overall costs for the deliverables set out to provide confidence that the Project is providing value for money and is costed competitively. As a result, we agree with the Expert Assessors and consider the Project to have met this Eligibility Criteria.

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.

We agree with the Expert Assessors and consider the Project to have a sufficiently robust methodology which gives confidence that the Project will be capable of progressing in a timely manner. The Project plan and the milestones articulated are clear, easily understood, and well thought through. We agree with the Expert Assessors that additional detail on the stakeholder engagement work packages would have strengthened the Application, however we consider the Project to have met this Eligibility Criteria.

Electricity Projects not selected for funding

[REDACTED]