Strategic Innovation Fund (SIF)

Round 2 Innovation Challenges – Beta Phase

Funding Decision and Summary of Recommendations from Expert Assessors

Contents

Introduction

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

The SIF was introduced within the RIIO-2 price control by Ofgem to support network innovations that contribute to the achievement of Net-Zero while delivering real benefits to network consumers. The SIF is being delivered in partnership with Innovate UK (part of UKRI), who are administering the SIF and are working to coordinate innovation activities funded by network consumers with other innovation funded programmes.

For each round of the SIF, new Innovation Challenges are launched focusing on strategic issues currently facing gas and electricity networks. Round 2[1] of the SIF, was launched in May 2022 and focuses on four Innovation Challenges:

1. Supporting a just energy transition
2. Preparing for a net zero power system
3. Improving energy system resilience and robustness
4. Accelerating decarbonisation of major energy demands

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

[1] Find the four Innovation Challenges launched for Round 2 here: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges

As set out in the SIF Governance Document[2], Round 2 of the SIF is open to the Electricity System Operator, Electricity Transmission, Electricity Distribution[3], Gas Transmission and Gas Distribution licensees.

This report is for the Round 2 Beta Phase. It sets out the Funding Decision and Summary of Recommendations from Expert Assessors for Ofgem's consideration for Projects which submitted an Application for the Round 2 Beta Phase and met the Eligibility Criteria set out in the SIF Governance Document and the Innovation Challenge-specific requirements outlined in the Round 2 Innovation Challenges.

[2] The SIF Governance Document can be found here: https://www.ofgem.gov.uk/decision/updated-sif-governance-document
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1 Round 2 Summary

Four Innovation Challenges were launched in May 2022 for Round 2 of the SIF[4]. For Round 3, the Innovation Challenges focus on specified areas that are key to achieving key sectoral targets over the next decade, such as delivering a Net-Zero power system by 2035. The Round 2 Innovation Challenges are:

1. Supporting a just energy transition
2. Preparing for a net zero power system
3. Improving energy system resilience and robustness
4. Accelerating decarbonisation of major energy demands

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

The key underlying principles established to prioritise these challenges have been:

- Strategic: innovations are required to meet national and devolved Net Zero targets effectively.
- Network relevant: innovation needs and solutions that can be taken forward or materially supported by energy networks.
- Timely: the challenge should focus on problem areas where solutions can be scaled up to meet the requisite Net Zero targets and commitments. 2035 was used as a target year for identifying challenges for Round 2.
- Scope: the scope of Innovation Challenge complements and does not duplicate other UK innovation programmes (including other network innovation funding mechanisms).

[4] Find the four Innovation Challenges launched for Round 2 here: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges

Within each of the Innovation Challenges are specific requirements on scope and partner requirements. Projects submitted to the SIF must meet these specific requirements and must follow the SIF Governance Document[5].

In April 2023, over £6.1m was awarded to 53 Projects for the Discovery Phase of Round 2[6]. In October 2023, over £16m was awarded to 36 Projects for the Alpha Phase of Round 2[7]. This report offers recommendations on which of the completed Round 2 Discovery Phase and Alpha Phase Projects should continue to be funded in the Beta Phase. Additionally, following a consultation and decision from Ofgem, Projects from outside the SIF which did not complete a Discovery and Alpha Phase Project were eligible to submit directly to the Round 2 Beta Phase. In Round 2 Beta Phase, a total of 27 Applications were submitted.

For the Round 2 Beta Phase, Projects start from 1 September 2024, can last up to five years, and can request SIF Funding greater than £500,000. Prospective Beta Applications seeking more than £10,000,000 were required to provide justification to Innovate UK and Ofgem prior to the Beta Phase Application period close of 22 May 2024.

Applications submitted to the Round 2 Beta Phase by the 22 May 2024 deadline, and which met the Innovation Challenge-specific requirements, were assessed by Expert Assessors. The Expert Assessors are external appointees whose recommendations inform Ofgem's decision-making on the selection of Projects for SIF Funding. The Expert Assessors have relevant expertise and knowledge on the respective Innovation Challenges and/or the energy sector, including in areas such as policy and regulation, commercial, financial, and technical. Consistent with the requirements of the SIF Governance Document[8], the Expert Assessors have assessed each Application with reference to (a) its compatibility with the Eligibility

[5] The SIF Governance Document is available here: https://www.ofgem.gov.uk/publications/updated-sif-governance-document
[6] Round 2 Discovery Projects are available here: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-2-discovery-projects-approved-funding
[7] Round 2 Alpha Projects are available here: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-2-alpha-projects-approved-funding

Criteria in chapter 2, and (b) taking into consideration any additional and relevant information available to the Expert Assessors.

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

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

This report is a consolidation of the Applications assessed by the Expert Assessors and sets out recommendations from the Expert Assessors to Ofgem on which Projects have met the Eligibility Criteria and should be considered for SIF Funding in the Round 2 Beta Phase of the SIF. Ofgem, taking into the account the Expert Assessors' assessment and recommendations, is the sole decision-maker for the SIF.

2 Assessment Process

For the Round 2 Beta Phase there is a maximum of five stages to assess eligible submitted Applications:

- Initial sift - completed by Innovate UK to confirm whether an Application complies with the Innovation Challenge-specific requirements[9].
- Expert Assessor evaluation – Each Expert Assessor assesses and scores questions 3-9, 11, 13 and 14 of each Application and the accompanying appendices. These questions tie directly to the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document. Each Expert Assessor includes their assessment of how and why an Application has met or not met each Eligibility Criteria and an overall comment for each Application assessed.
- Expert Assessors' overall recommendation – As part of their assessment, each Expert Assessor provides an overall recommendation on whether the Application and Project should be considered for SIF Funding in the Beta Phase. This decision is made based on an assessment on whether the majority of Expert Assessors consider that each of the Eligibility Criteria has been met and a consideration of any serious risk or opportunity in respect of an Application. Applications will be recommended for SIF Funding if they have a majority of Expert Assessors recommending it (two of the three Expert Assessors who assessed an Application), no significant risks are identified which could prevent the Project from progressing, and the majority of Expert Assessors on each Project consider it to have met each of the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document.
- Recommended Project-specific conditions – Should an Expert Assessor identify an area for additional consideration or clarity for a Project recommended for SIF Funding during the Beta Phase, the Expert Assessor may recommend a Project-specific condition be included. In many cases these have been offered as ways of strengthening the Project outcomes and their inclusion does not necessarily reflect a weakness in the Application. The recommended Project-specific conditions are then considered by Ofgem and finalised with any modifications in each of the successful Projects' Project Direction.

[9] For more information on the Innovation Challenge-specific requirements please see: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-two-innovation-challenges

- Final decision – The consolidated recommendations report is provided to Ofgem for consideration on which of the Applications should be considered for SIF Funding in the Round 2 Beta Phase. Having taken into account the Expert Assessors' report, the Authority will decide which Projects should receive SIF Funding.

2.1 Meeting the SIF Eligibility Criteria

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

Question number	Application Question	Eligibility Criteria (chapter 2 of the SIF Governance Document)
1	Lead Network	(not scored)
2	Animal Testing	(not scored)
3	Solution statement and solution focus	Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.
4	Innovation justification	Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem. Eligibility Criterion 3: Projects must involve network innovation. Eligibility Criterion 5: Projects must be innovative, novel or risky.
5	Impacts and benefits selection	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).
6	Impacts and benefits description	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).
7	Team and resources	Eligibility Criterion 6: Projects must include participation from a range of stakeholders.
8	Project management and delivery	Eligibility Criterion 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.
9	Key outputs and dissemination	Eligibility Criterion 4: Projects must not undermine the development of competitive markets.
10	Intellectual Property Rights (IPR), procurement and contracting	(not scored)
11	Commercialisation, route to market and business as usual	Eligibility Criterion 4: Projects must not undermine the development of competitive markets.
12	Policy, standards and regulations	(not scored)
13	Consumer impact and engagement	Eligibility Criterion 7: Projects must provide value for money and be costed competitively.
14	Value for Money	Eligibility Criterion 7: Projects must provide value for money and be costed competitively.

15	Associated Network Innovation Project(s)	(not scored)

3 SIF Beta Phase – [Supporting a Just Energy Transition Summary] - Summary

This section covers the assessment of Round 2 Beta Phase Applications received into the 'Supporting a Just Energy Transition' Innovation Challenge.

For the Beta Phase, 3 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 22 May 2024 and are listed below.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Expert Assessors Recommended for funding (Yes/No)	Ofgem Decision for funding (Yes/No)
10126476	VIVID: Vulnerability Identification Via Informative Data	SHEPD PLC	£ 7,916,814	£ 802,587	£ 7,114,227	Yes	No
10126613	Fairer Warmth Hub	SGN PLC	£ 3,417,905	£ 475,932	£ 2,941,973	Yes	No
10127935	SHIELD	UKPN (Operations) Limited	£ 9,887,287	£ 4,485,955.00	£ 5,401,332	Yes	Yes

4 Expert Assessors Recommendations [Supporting a Just Energy Transition]

4.1.1 10126476, VIVID: Vulnerability Identification Via Informative Data

Submitted Project description
VIVID will be at the forefront of GB vulnerability management by unlocking the potential of data held by the energy industry, local authorities, health and social care partnerships and the third sector. VIVID will utilise multi-sector data in a highly secure way, to identify households that would benefit from timely and relevant practical and financial support by further developing the Support, Help and Resilience Prioritisation portal (SHaRP), enabling smarter local services and emergency response. Aberdeen is our Pathfinder location for first deployment with expansion planned for two Fast Follower local authority regions, before training Learning Partners and rolling out GB-wide.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered the Project to have addressed the Innovation Challenge because it has the potential to transform the ability of network operators, energy suppliers, local authorities, and third-sector organizations to implement a multisector data service for better identifying vulnerable consumers to support them. These endeavours align with the aims of the Innovation Challenge, "Supporting a Just Energy Transition" by drawing in multiple sectors to improve coordination.

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers.	Met	The Expert Assessors considered this Project to have clearly identified the potential to deliver a net benefit to electricity and gas consumers because the solution will help to identify vulnerable consumers who might not otherwise be recognised and develops ways to then provide support to those consumers. This will enable these consumers to access more support services or cost savings, resulting in a net benefit to consumers. Expert Assessors suggested that the benefits could be communicated more effectively to Project stakeholders and consumers and have added a special condition to support this.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it has developed a new methodology for combining and using data to overcome barriers to data sharing and vulnerable customer identification. The Expert Assessors also considered this Project to involve network innovation because it brings together a range of stakeholders to address consumer vulnerability in a way that has not been achieved before.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to undermine the development of competitive markets because there is no solution that currently adequately captures the information for vulnerable consumers who are not included in the Priority Services Register. The Project looks as if it will complement projects that are developed to enhance the Priority Services Register. One of the Assessors considered that there is a degree of risk that the

		Project might undermine competitiveness if they didn't share the detailed, comprehensive information with Ofgem Consumer Consent and other similar Projects. The Expert Assessor recommended that the Project should work closely with Ofgem Consumer Consent Project and disseminate the result widely across the market.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because it is seeking to implement multisector data sharing methods to break down barriers that are currently preventing identification of some of the most vulnerable individuals in society, hence preventing them from receiving help and support. Additionally, the Expert Assessors considered the Project to be innovative because it is attempting to address an area that does not appear to be immediately profitable, bringing expertise in from different organizations that would otherwise have worked in silos, and will develop a novel approach to aggregation and sharing of potentially highly sensitive personal data.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because the Project team has included Project Partners with expertise in both technical solutions and in community outreach. The sub-contractors have strong track records in the delivery of community-based programmes.

7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be delivering value for money and costed competitively, due to cost efficiency, the potential benefits to the vulnerable consumers and positive outcomes. Additionally, the Project has evidenced that the potential benefits and positive outcomes will scale up when the Project rolls out incrementally after an initial focus in Aberdeen. Two Expert Assessors raised questions that the activities allocated to one of the Project Partners will add value to the Project and queried whether these activities should receive SIF Funding. The Expert Assessors recommended that Ofgem should review the DCC costs and consider whether the DCC should continue to be involved with the Project as a non-funded partner in order for the organisation to continue to provide insights to the Project.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The documentation provided demonstrates a strong Project management ethos and the work packages and associated milestones have been clearly described. In addition, the deployment roadmap gave the Expert Assessors confidence of a suitable pace of progression.

Recommendation to the Gas & Electricity Markets Authority
FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge by potentially transforming the ability of network operators, energy suppliers, local authorities, and third sector organisations to implement a multisector data service for identifying vulnerable consumers. The Project has positive feedback on its partnerships and vulnerability criteria, its innovative approach to identifying and supporting vulnerable consumers, and the potential net benefits to gas and electricity consumers. The Project was noted for its methodology in data sharing and stakeholder collaboration, aiming to address consumer vulnerability uniquely. It does not undermine competitive markets but complements existing solutions, such as the Priority Services Register. The Expert Assessors acknowledged the Project's comprehensive stakeholder participation, cost efficiency, and strong Project management, ensuring timely progression and robust methodology.

The Expert Assessors recommended that DCC and CGI must share at earliest opportunity, the consumer consent data sharing methodology and finding with Ofgem and relevant stakeholders.

The Expert Assessors also recommended that Ofgem should review whether SIF funding is the most appropriate route for DCC activity in this Project because they considered DCC activity is focused on their own product development and potentially add less value as the Project will get better data from e-on.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem disagrees with the Expert Assessors and have not approved funding for this Project. Ofgem disagrees that the Project meet the essential criterion "Projects must involve network innovation" because the energy suppliers have obligation to identify vulnerable customers on the Priority Service Register (PSR) and share with networks; a sector over-arching PSR with other utilities sharing their PSRs will soon be implemented, therefore similar work is already under way as part of business-as-usual operations. Ofgem also disagrees that the Project meets essential criterion "Projects must provide value for money and be costed competitively" because the

funding amount is considered disproportionately high for the development an identification model.

Recommended Project specific conditions
N/A

4.1.2 10126613, Fairer Warmth Hub

Submitted Project description
The Fairer Warmth Hub (FWH), formerly Hy-Fair, connects stakeholders of the Net Zero Transition through place-based strategies, providing tools and guidance to facilitate local energy plans and enhance collaboration. The Hub includes the Fairer Warmth App which reduces miscommunication and aids consumers in vulnerable situations and the digitally excluded with bespoke energy transition support. It consolidates multiple tools and guidance into a single access point, supporting diverse community participants. The FWH aims to establish a scalable, cost-effective framework to accelerate equitable clean energy and infrastructure delivery. Beta Phase will refine the tools, deliver demonstrators and scale the FWH nationally.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it addresses the understanding of consumer vulnerability in the context of Net Zero transition by aiming to create replicable approaches that will better support and include vulnerable and disadvantaged consumers. The Fairer Warmth Hub has the potential to improve coordination between networks and other stakeholders to enable joined up

		and targeted support for consumers. In addition, the remit and responsibility for consumer service provision provides an evidence base for how it will achieve this.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have identified potential to deliver a net benefit to both gas and electricity consumers because the Fairer Warmth Hub is aimed at improving access to solutions for decarbonising heat provisions for vulnerable consumers in addition to enhancing existing efficiency efforts. The Expert Assessors were satisfied that there are clear potential social benefits to be derived from targeted guidance to improve energy efficiency and physical warmth in homes, in addition to cost savings to consumers through engagement with the Fairer Warmth Hub.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is looking at supporting network planning for both gas and electricity through the utilisation of digital tools. The Expert Assessors agreed that the innovative element of the Project is the bottom up, place-based approach to supporting consumers. Additionally, the Expert Assessors found the Fairer Warmth Hub to be an alternative way of approaching implementation of Local Heat and Efficiency Energy Strategies and Local Area Energy Plans and will also assist network operators with improved outreach to vulnerable consumers.

4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to undermine the development of competitive markets because the core aims of the Project are around community and consumer support. Fairer Warmth Hub looks to provide support for communities to bulk purchase assets such as heat pumps or hydrogen ready boilers and this will improve the commercial landscape for manufacturers of these products. The Expert Assessors noted that, given the community-oriented nature of the Project and the involvement of multiple non-profit stakeholders, there is no threat to competitive markets.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because of the focus on new templated pathways to assist vulnerable consumers and communities. The Project is novel in its approach because it aims to bring together various elements of energy advice and outreach into a unique hub concept, linking multiple stand-alone tools and organisations to achieve better outcomes for vulnerable consumers. The Expert Assessors concluded that the linkages with DESNZ and other Innovate UK funding streams did not preclude the Project from network innovation funding.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Eligibility Criterion to be met because the Project includes partnership from a wide range of stakeholders including gas and electricity networks, community outreach, local Government and energy service companies with wide ranging expertise among the group. The Expert Assessors considered that while

		there is strength in leveraging a range of community groups and scaling the innovation across multiple local authorities, the wide range of stakeholders could be a risk to the deliverability of the Project and such risk in this sense would need to be managed accordingly.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be value for money given the benefits outlined when compared against the cost of delivery. Benefits articulated were detailed as both direct and indirect, with the Expert Assessors commenting on the significant social and health benefits to be generated by the Project. The Expert Assessors viewed the cost of the Project overall to be on the lower end for a Project involving multiple demonstrators, and therefore good value for money for the ambitious and far-reaching aims of the programme.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project be well thought through with a sufficiently robust methodology to enable the Project to progress in a timely manner. The Project management documentation could have been more detailed but was deemed sufficient and there is dedicated Project management in place. The Expert Assessors did note that the Project, given its far-reaching aims, multiple stakeholders and large consortia will need to maintain rigorous Project management throughout to ensure timely delivery of the complex programme of work.

Recommendation to the Gas & Electricity Markets Authority
FUND
Overall, the Expert Assessors considered the Project to have met all Eligibility Criteria and recommended the Project for Funding. The Project directly addresses the Innovation Challenge Supporting a Just Transition, through its ambition to assist consumers directly and help them to help navigate the energy transition. The Project looks to provide a network of support that connects communities with larger entities such as Networks, suppliers and other public bodies which is considered an ambitious undertaking. If successful, the Fairer Warmth Hub will help to filter and provide clarity to consumers on what decarbonisation approaches are best for individuals and communities. The Fairer Warmth Hub will look to consolidate these tools through templated pathways so they can be better utilised by communities and individuals, while also looking to incorporate elements of whole system network planning through enhanced utilisation of Local Area Energy Plans. The Expert Assessors considered the Project to have engaged a wide range of stakeholders and have a large consortium with the experience necessary to achieve the ambitions of the programme.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND
Ofgem disagrees with the Expert Assessors and has not approved funding for this Project because Ofgem considered the Project did not meet Eligibility Criterion 5 (Projects must be innovative, novel and/or risky), because it did not consider that this type of advice service to be sufficiently novel or risky. Ofgem considered that mechanisms for community purchasing of heat pumps, and other low carbon technologies already exist as do similar community and business advice services, and that consolidated services and drop-in centres are not a novel concept. Ofgem also considered that 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) was not met. Ofgem considered that the Project was not clearly thought through or capable of progressing in a timely manner because both the aims of the Project and its plans to achieve them lacked granularity. There was a degree of uncertainty about how the many stakeholders involved would input into the Project in a meaningful and cohesive manner. Ofgem considered that the Project plan was not clearly defined, the work packages had unclear aims, and risks to the Project appeared to be overlooked.

Recommended Project specific conditions
N/a

4.1.3 10127935, SHIELD

Submitted Project description
SHIELD is a bold new initiative aimed at making the Net Zero transition accessible to low-income residents of social housing and other tenures who cannot afford Low Carbon Technologies (LCTs). SHIELD utilises innovative solutions, including distributed data centres for heating, PV and battery storage to intelligently balance supply and demand. This innovative approach to decarbonisation seeks to address the debilitating issues faced by those who live in fuel poverty, helping to reduce

both the upfront and running costs of consumers' heating and energy. SHIELD provides a path to decarbonisation for all, which would otherwise be out of reach.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge of understanding consumer vulnerability and, adapting and improving existing decarbonisation solutions because it has potential to support decarbonisation of heating and electricity for fuel poor and vulnerable households. The reduction in costs for vulnerable consumers through the vehicle of the social ESCo (Energy Services Company) model could lead to better economic and social outcomes for these consumers. The focus is on geographic areas of fuel poverty and the Project will work with local government and social housing entities to demonstrate the potential and benefit of innovative opportunities via aggregation.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered the Project to have clearly identified potential to deliver a net benefit to electricity and gas consumers, because it places the fuel poor and vulnerable households at the centre of its proposal. It aims to establish a 'pay as you use' model to improve living conditions and secure warmer homes and lower cost electricity, while reducing carbon emissions and strain on the grid. To the extent that the ESCo and HeatHub model also provides flexibility services to

		network operators, it should contribute to reducing costs of network operations and reinforcement, the benefits to consumers are therefore both direct and indirect.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it will test new ways of deferring or reducing network investment costs resulting from significant anticipated electrification. These innovations centre on flexibility services from highly distributed renewable power assets managed by a social ESCo to optimise energy use and aggregate savings across a locality and make provision for residual heat for domestic supply from distributed data storage using the innovative HeatHub technology. Through the delivery of the outputs, the Project could enable better operation of the electricity network through improved services and minimisation of planned infrastructure improvements.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be undermining the development of competitive markets because it is looking to open flexibility markets by further by developing new services from community-scale ESCos, while generating revenues from network services. As part of the commercialisation route, the intended market model aims to become widely available, as the partners plan for extension across DNOs, funders and other interested and eligible parties in the final work package of the Beta Phase. UKPN, as lead

		network operator, is positioned to adjust flexibility procurement practices to accommodate the planned innovation, and to share knowledge with other DNOs. Additionally, there is no intention to generate income or royalties from Project IP outside open market participation.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative, novel and risky because it seeks to assemble a cross-sector consortium with knowledge and skills needed to reduce fuel poverty. The Project's solution is novel in its combination of technical and socio-economic innovations, which should, if successful, reduce carbon emissions and costs of whole energy system decarbonisation, as well as enabling lower income households to access benefits from affordable clean heat and power. It is risky, because it requires sustained collaboration of multiple partners to assemble and operate the envisaged local energy services reliably and affordably, while gaining the trust of vulnerable sections of society, and generating sufficient revenues to cover costs and remain on track to commercial viability through unlocking value in an innovative and transformative way.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because it combines Project Partners, spanning commercial, technical, civic, local government and social enterprise sectors to develop and manage the intended energy service

		and local energy trading innovations. Considerable stakeholder engagement is also planned for the Beta Phase, encompassing households and tenants through survey and one-to-one methods, as well as a larger number of social landlords, further DNOs and potential funders. This is appropriate given the focus on vulnerable consumers and the trajectory required for the journey to commercialisation. This network of interests is further extended through subcontractors including the Power Networks Demonstration Centre and equipment suppliers.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be delivering value for money and be costed competitively. The Expert Assessors were satisfied with the costings presented because the Project Partners are contributing 45.4% to costs, demonstrating commitment and buy in to the solution. One third of household batteries will be funded by UKPN and the community ESCo; PV costs are funded by the ESCo. Additionally, there should be value for money from savings on energy bills for fuel poor households, alongside potential reductions in network investment from local flexibility services and carbon reductions from use of renewable power and waste/residual heat sources.
8: Projects must be well thought through and have a robust methodology so that	Met	The Expert Assessors considered that the Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner, because the necessary skills and

they are capable of progressing in a timely manner.		knowledge for Project management are evident in the consortium, and there is a systematic, detailed management and methodology stated. UKPN and Essex County Council will work together to manage overall progress. The social enterprise Power Circle Projects (PCP) will be tasked with establishment of a viable community ESCo, in the form of Essex Community Energy (ECE), responsible for interconnected energy supply, export and customer service agreements. Power Circle Projects will manage the successive phases of the Project and its multiple technical and social/civil sector partners.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met all Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to directly address the Innovation Challenge as it aims to directly help reduce bills for vulnerable consumers in social housing using a highly innovative business model and technical innovation that utilises waste heat. Successful delivery could have significant benefits for multiple parties and the Expert Assessors were impressed with the collaboration of the Project Partners managing their respective interests and working together to unlock value for each other. The Expert Assessors found that the Thermify heat hub technology was crucial to the innovative nature of the proposal as it gives rise to the business model and the ability to unlock value. The Expert Assessors noted that the Project will deliver net benefits and uses a wide range of stakeholders as evidenced by the high contributions and were satisfied there was clear potential for network benefit through the improved services and minimisation of planned infrastructure improvements. The Expert Assessors commended the consortium for

balancing respective interests to work together to test a novel solution which could have significant benefit for both vulnerable consumers and the wider energy system.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors and approves this Project for funding. The Expert Assessors viewed the Project to have met all Eligibility Criteria - Ofgem agrees on the basis that the Project's innovation lies in its multi-faceted, innovative approach to providing more affordable heating for vulnerable consumers. This will deliver benefits to both gas and electricity customers as it will reduce their bills, while exploring innovative new business models that bring together different sectors to harness mutually beneficial novel commercially arrangements.

Recommended Project specific conditions
At the kick off meeting, the Project must provide explanation on how the tenant would receive the discount on electricity should they change supplier. Prior to the Funding Party beginning work on the Project, it must provide to the monitoring officer an update on the two pilot installations of the Heathub showing the technical viability of the solution. Further updates must be provided during the quarterly meetings until the installations have been completed.

5 SIF Beta Phase – [Preparing for a Net Zero Power System] - Summary

This section covers the assessment of Round 2 Beta Phase Applications received into the 'Preparing for a Net Zero Power System' Innovation Challenge.

For the Beta Phase, 4 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 22 May 2024 and are listed below.

Project reference number	***Project name***	***Funding licensee***	***Total Project costs (£)***	***Total Project contribution (£)***	***Total SIF Funding requested (£)***	***Expert Assessors Recommended for funding (Yes/No)***	***Ofgem Decision for funding (Yes/No)***
10120718	Artificial Forecasting	Northern Powergrid (Northeast) Limited	£ 3,664,540	£ 366,454	£ 3,298,086	No	No
10121485	Powering Wales Renewably	National Grid ESO Limited	£ 12,189,431	£ 1,835,798	£ 10,353,633	Yes	Yes
10128096	SIF Black Start Demonstration from Offshore Wind (SIF BLADE)	SP Transmission PLC	£ 5,454,276	£ 603,371	£ 4,850,905	Yes	Yes

6 Expert Assessors Recommendations [Preparing for a Net Zero Power System]

6.1.1 10120718, Artificial Forecasting

Submitted Project description
As Distribution Network Operators (DNOs) develop their distribution system operator functions, the annual process currently used to forecast load at extra-high-voltage/high-voltage needs to become increasingly granular, at the monthly, weekly, daily and hourly level, to support flexibility dispatch and defer or avoid reinforcement. Moreover, the increasing prevalence of low-voltage monitoring data enables new use cases to support network planning and the extension of flexibility markets at ED3. The Artificial Forecasting Project addresses these unmet needs by building innovative AI solutions to expand load forecasting capability at primary (EHV-HV) and secondary (HV-LV) substations, optimising flexibility procurement and enabling Distribution System Operators (DSO) functions across the sector.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors all agreed that the scope of the Project addresses the Innovation Challenge by supporting the system integration of novel assets and the marketing accessibility, as improving load forecasting at a range of levels within the power system will facilitate more effective operation of a low carbon power system.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors agreed that this Project has the potential to deliver a net benefit to consumers because improved forecasting should enable improved layering of services to flexibility service providers (FSPs), in turn increasing liquidity of flexibility across short to medium timeframes. This

		could push down the price of flexibility provision, and therefore reduce the cost of distribution network operation for consumers. The Expert Assessors did acknowledge that there are high risks to delivery of the benefits contingent on model accuracy, market evolution, and performance of the forecast models. It was suggested that adjustments to Project delivery would de-risk the investment, particularly focussing the Project to de-risk activities at the HV-LV level.
3: Projects must involve network innovation.	Met	The Expert Assessors all agreed that the core Project focus is upon network innovation in that it aims to produce a solution offering more accurate load forecasting methodologies at various substation voltage levels on the distribution network, which will also facilitate potential improvements in distribution system operator flexibility markets.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors agreed the Project does not undermine the development of competitive markets because the Project does in fact have the potential to improve the participation and diversity of flexibility providers in flexibility markets. The Expert Assessors have indicated that there is a risk of supplier monopoly as the solution provider to both Northern Powergrid and other DNOs unless there were stringent requirements around competitive procurement and producing software

		whitepapers enabling others to fully understand, integrate and build upon the solution. For the longer-term implementation into business as usual, there should be a requirement for Northern Powergrid to develop in house skills and capabilities whilst providing governance arrangements to mitigate risks of a supplier monopoly, and Expert Assessors felt that this could be more materially planned for and incorporated as a skills development aspect of the Beta Phase Project plan.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors agreed that the Project meets this Eligibility Criterion and is innovative because it is utilising machine learning models to forecast loads on the distribution level. This is a novel approach with very significant associated risks. The Expert Assessors recognised that there exists potential in the approach, but there persists significant uncertainty around whether the final forecast model would be able to improve forecast accuracy to an impactful level, and if that accuracy would materially enable improved procurement of flexibility. The Expert Assessors were sufficiently satisfied that the Project had investigated whether other Distribution Network Operators were developing or employing similar techniques presently.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors agreed that the Project does include sufficient participation from a range of suitable stakeholders because the relevant

		networks, machine learning specialists, and flexibility service providers are all represented in the delivery team. The Expert Assessors welcomed the involvement of flexibility service providers in delivering the Project and would encourage further engagement with a wide range of flexibility service providers as the solution approaches commercial maturity. It was noted that the Expert Assessors would like to see proactive engagement from National Grid Electricity Distribution, UKPN and other DNOs to ensure standardisation and consistency of models which support flexibility markets. The Expert Assessors suggested that the Project should consider a Distribution Network Operator Steering Group with representation from the other distributions networks, flexibility providers, and interface providers that may operate any intermediary market platform in future. The Central Market Facilitator should also have active and material engagement with the Project to ensure that Application Process Interfaces (APIs) and system integration opportunities are conducive to facilitating wider industry wide rollout.
7: Projects must provide value for money and be costed competitively.	Not Met	The Expert Assessors did not consider this Project to be value for money and costed competitively. The Expert Assessors took the view that some key aspects could be de-risked through reprofiling of stage gates, adjusting the focus of the Project towards ensuring model accuracy of forecasts at the HV-LV level (where there was agreement that

		the greatest value for unlocking flexibility provision was likely to manifest beyond current business as usual load forecasting methodologies). A key risk was identified as the availability of low voltage data through Northern Powergrid's flexibility data platform, which is in the process of being refreshed and updated. The extent of the risk introduces doubt in respect of the delivery of consumer value. This could be better managed as a Project dependency through adjustments to delivery schedules and inclusion as success criteria within stage gates. Expert Assessors recognised that the main value potential was at the HV/LV level but that the interim stage gate at the 12-month mark of delivery would principally mitigate against deployment of the HV/EHV solution. At this time, Expert Assessors felt that the Project does not meet the Eligibility Criterion and would need to accommodate some of these adjustments ahead of a resubmission. It was suggested there should be additional stage gating around putting spend controls through stage gating on the HV/LV data becoming available and a workstream on operationalising the product, ongoing costs, skills, and capabilities expertise to deploy and maintain the model to ensure that the considerable investment would unlock value.
8: Projects must be well thought through and have a robust	Met	The Expert Assessors consider this Project to be well thought through and have a robust methodology so that they it progresses in a timely

methodology so that they are capable of progressing in a timely manner.		manner because the Project management was robust, and the team planning was at a high standard. The Project in its current form would be expected to be delivered in a timely manner at a high standard. However, additional stage gating to manage risks at end of year one and additional deliverables around engagement and operationalising the solution would give greater confidence of the Project being able to deliver value for money. Expert Assessors would welcome greater clarity on how the Beta Phase would consider that plan for ongoing maintenance, operation, and performance of the model. Further consideration of how the model would be maintained, retrained, and updated on a quarterly process in business as usual would be welcomed. The written Application would have benefitted from further thought of how much computational requirements would be needed to retrain and rerun models, although demonstrated at interview that this had clearly been thought through.

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
The Project was not recommended for funding by the Expert Assessors. Primarily there were still significant risks to delivering the full range of opportunity and value through this Project

(Eligibility Criterion 7). Expert Assessors took the view that some key aspects could be de-risked through reprofiling of stage gates, adjusting the focus of the Project towards ensuring model accuracy of forecasts at the HV-LV level (where there was agreement that the greatest value for unlocking flexibility provision was likely to manifest beyond current business as usual load forecasting methodologies).

Additionally, while Eligibility Criterion 8 was met, the Expert Assessors raised concerns about the thought and preparation put towards greater clarity required on the plan for ongoing maintenance, operation, and performance of the model in business-as-usual, including how Northern Powergrid and other distribution network operators would need to upskill their workforces to do so effectively.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem has agreed with the Expert Assessors that this Project should not be funded. The Project provided insufficient evidence to justify the value for money due to the significant risks raised about risks for delivering the full range of opportunity and value for this Project. Ofgem acknowledges and agrees with the Expert Assessors views on requiring greater clarity on the plan for ongoing maintenance, operation, and performance of the forecast model and operational interfaces.

Recommended Project specific conditions

N/A

6.1.2 10121485, Powering Wales Renewably

Submitted Project description

Pweru Cymru yn adnewyddol (Powering Wales Renewably, PWR) brings together the Welsh Government, whole energy system users and network operators who collectively span the energy

system value-chain. Collaboratively, they identified the priorities required to support the delivery of the Welsh Government's decarbonisation plans, prepare for a net zero power system and deliver net benefits to Wales's citizens and communities.

Through delivery of a digital twin of the whole Welsh energy transmission and distribution systems, PWR will provide a digital common interface to accelerate the integration of renewable generation, by enhancing locational visibility of system challenges and whole energy system status.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors agree that the Project addresses the Innovation Challenge because it will support the system integration of novel assets by developing a digital twin tool enabling key stakeholders in the Welsh energy system to plan, coordinate and integrate renewable generation, distributed energy resources, and flexibility resources to the system. Furthermore, this approach could be of high value if replicable across other areas of GB.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors agreed that this Project has clearly identified potential to deliver a net benefit to electricity consumers because it will support accelerated rollout of connections of low carbon energy sources, and the ability to leverage lowest cost flexibility would deliver cost and carbon savings to generators and consumers. Some questions were

		raised about the potential of replicability to wider areas of the GB network.
3: Projects must involve network innovation.	Met	The Expert Assessors agreed that this Project involves network innovation because it addresses data integration between generators, site developers, flexibility providers and the energy networks across vectors and at distribution and transmission level. This type of system-wide digitalisation has not yet been attempted for the UK. The learnings gathered from developing this system could be significant.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors agreed that this Project demonstrated that it does not undermine the development of competitive markets because it will enable the delivery of digital commons infrastructure. This will improve data transparency by the full range of energy system stakeholders by being open to all parties and thus facilitate the effective operation of energy and flexibility markets. The Expert Assessors did flag that there should be regulatory oversight of the ongoing development of monopolised digital infrastructure by Ofgem (particularly were developed by third party providers). Furthermore, the Project should be required to publish digital commons of the solutions in the form of white papers, APIs, and licensed accessibility - notwithstanding security considerations, as per Ofgem's Data Best Practices.

5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered this Project to be innovative, novel and/or risky because delivery of a regional scale digital twin is novel and will need to overcome significant challenges, such as combining multiple energy system data sets to improve planning operations. The Expert Assessors also consider that in attempting to address several use cases in parallel, such as support for Local Area Energy Plan and Regional Energy Strategic Planning support, the Project is inherently risky and innovative. Better technical and innovation support for Local Area Energy Plan development and Regional Energy Strategic Planning were identified by the Expert Assessors as being a priority area of focus for the Project if it is to fully deliver its strategic potential. The Expert Assessors commented that the Project should not be delayed for other Projects such as the Virtual Energy System for which Powering Wales Renewably complements.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because multiple government, energy and third-party stakeholders are clearly identified as Project Partners or key stakeholders, covering a cross-section across the country's residents. The Expert Assessors considered that the Project would benefit from greater involvement of some key energy and non-energy industry stakeholders such as the Catapult(s) and flexibility providers to

		embedded knowledge and commercial experience of operating in the areas of the use cases and to ensure ESO are accountable to delivering to their industry.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors agreed that the Project is costed competitively and can deliver value for money. Whilst the costing of the Project is high, there is potential for significant benefits if delivered effectively, leveraging the experience of key previous stakeholders, and providing accountability that a range of industry stakeholders have materially contributed. The Expert Assessors did comment that the balance of funding was concentrated largely around two of the Project Partners and this presented risks to the relatively smaller contribution from other Project Partners. Due to the whole systems nature of this Project, they said that it is critical that the full range of stakeholders are actively part of development.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors consider this Project to be well thought through and have a robust methodology because the Project Management materials were professionally delivered. However, Expert Assessors noted the Project would benefit from considering the breadth-first vs depth-first focus on the use case delivery with an increased prioritisation of use cases 1 and 3. This would help manage delivery of tangible benefits. Furthermore, greater utilisation of stage gates during interim points of delivery to validate

		stakeholder input, manage interdependencies with other initiatives, and validate success criteria of the software developed.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors agree that the Project addresses the Innovation Challenge by developing a digital twin tool to help stakeholders in the Welsh energy system plan and integrate renewable generation, distributed energy resources, and flexibility resources. While there were concerns about its replicability, this tool could be valuable if replicated across other areas of GB. The Project is expected to benefit electricity consumers by accelerating the rollout of low carbon energy sources and reducing costs and carbon emissions. the Project involves network innovation by integrating data across different energy sectors and levels. The Project is considered innovative and risky, with challenges in delivering a regional digital twin. It should focus on technical and innovation support for Local Area Energy Plans and Regional Energy Strategic Planning. The Project would benefit from greater involvement of key energy and non-energy stakeholders and has competitive costing with potential significant benefits. The Project is well thought through with a robust methodology but should prioritise certain use cases and utilise stage gates to manage delivery and validate success.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors and approves this Project for funding. Ofgem agrees with the Expert Assessors' view that the Project should progress in tandem with, and not wait

for, the Virtual Energy System programme, but an open approach to data sharing should be adopted between Projects.

Recommended Project specific conditions

As part of the quarterly review meetings, the Project must present its approach to stakeholder engagement and clear accountability to increase participation from energy and non-energy industry stakeholders, such as Catapults and flexibility platform providers.

In addition to complying with general condition 13 regarding Data Best Practice and alignment with the Digital Strategy and Action Plan Guidance, the Project must specifically address how it will manage background IP to ensure the digital infrastructure it develops is accessible to other digital service providers.

The Project must incorporate stage gates aligned with the completion of the pilot and minimum viable product phases of the Data Sharing Infrastructure (DSI) Project. These stage gates must ensure that i) the Project informs the development of the DSI as a future use case for the Virtual Energy System, and ii) there is no duplication of effort, or if duplication occurs, it is justified.

At the Project kick-off meeting, the Project must present its plan for ensuring internal governance within the ESO and the Project, with clear lines of regular communication between the Project, the DSI Project, and the Virtual Energy System programme, to ensure they can inform each other's development and operate as a connected cohort of Projects.

6.1.3 10128096, SIF Black Start Demonstration from Offshore Wind (SIF BLADE)

Submitted Project description

Enabling a low-cost net-zero GB electricity network that is robust and secure, by demonstrating how novel technology can enable offshore wind farms to restore the onshore grid following a black out. Building on this, optimal market requirements and standard technical specifications will be developed to enable rapid commercial roll-out of this novel technology.

The overarching aim of the Black Start Demonstration from Offshore Wind (SIF BLADE) Project is to bring electricity system restoration from offshore wind to commercial reality by building the necessary cross-industry understanding including onshore transmission network owners, transmission system operators, offshore wind farm operators, and technology suppliers.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because there is a need for restoration services compatible with a Net Zero energy system. Currently, there are no other major innovation Projects addressing this issue. By developing evidence for the Energy System Operator and sector on the technical and commercial capability of offshore wind to provide restoration services, this Project has the potential to generate market standards that will help the power system be ready for Net Zero by 2035. However, as this is a whole systems problem and not purely a network innovation problem, Assessors felt the case for SIF funding could be seen as marginal.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers. The evidence generated by the Project will lead to the design and implementation of restoration services from offshore wind, allowing for a greater mix of renewable restoration and less disruption to

		consumers in the event of black outs, particularly when current fossil fuel sources of generation are no longer available.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is examining a new operating system. This system has the potential to provide innovative options for restoration services which haven't been examined in depth from a commercial or technical perspective to date, with input from the full breadth of relevant stakeholders. Additional commercial innovations include the identification of new revenue streams for offshore wind developers.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider the Project to be materially likely to undermine the development of competitive markets. Whilst it is possible that the Project's outputs could lead to ESO's decisions on restoration provision prioritising offshore wind when other options are available, the Project will develop and produce feasibility data for an additional service which will compete with existing provisions.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative, novel and risky as it provides feasibility for the development and demonstration of offshore wind farm restoration capabilities, markets, and specifications. The Expert Assessors also considered the Project is novel and risky because the offshore wind farm

		systems and markets are not developed to provide restoration services. It is helping stakeholders across the value chain, most of whom are associated with the Project, to contribute to the generation of both technological and market solutions.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because the Project consortium, partners and advisory board represent various developers, decision makers, and the supply chain necessary for offshore wind farms to provide Black Start. Stakeholders across the governance structure appear to be engaged.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be delivering value for money and be costed competitively. Whilst there were some concerns about the lack of transparency surrounding OEM costs and the potential cost of a sub-contractor as a Technical Director, the Expert Assessors recommended that a stage gate is held at the end of Stage 1 before the recruitment of the OEM. This stage gate is required to confirm the finalised OEM costs provide value for money. This would provide an opportunity for the Project to address the concerns before Stage 2 of the Project provides value for money.
8: Projects must be well thought through and have a robust methodology so	Met	The Expert Assessors considered the Project to have a robust methodology and be capable of progressing in a timely manner. Although the

that they are capable of progressing in a timely manner.		Project plan was felt to lack details in some areas, overall, it was considered to be well thought through, giving the Expert Assessors confidence in the Project achieving its outcomes.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met all the Eligibility Criteria. The Project addresses the Innovation Challenge as it aims to provide evidence for restoration services from offshore wind, thus improving the resilience and robustness of the electricity network. This will create market conditions which assist the Electricity System Operator in tendering for renewable restoration services and provide evidence of commercial and technical viability to incentivise potential restoration providers to participate. The Project will deliver a net benefit to electricity consumers through an eventual greater mix and availability of renewable restoration which will reduce disruption in the event of a blackout. The Project's range of stakeholders was felt to include appropriate representation from offshore wind developers and industry supply chain. Whilst overall the Project was considered to offer value for money, the Expert Assessors raised some concerns that the OEM costs could have been brought out more clearly. The Expert Assessors recommended that a stage gate be included at the end of the Project's Stage 1, before the recruitment of the OEM. This would allow for the costs associated with Stage 2 to be properly scrutinised.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors that the Eligibility Criteria were met. Ofgem agrees that the Project's innovation aims to evidence restoration services from offshore wind and improving the resilience and robustness of the electricity network. The Project provides an eventual greater

mix and availability of renewable restoration which will reduce disruptions during a blackout. Ofgem acknowledges the concerns raised by the Expert Assessors and has sought to address these concerns through the Project specific conditions.

Recommended Project specific conditions

- As part of stage gate 1 (set out as Stage Gate 1 in the Project plan), prior to the recruitment of the OEM, the Project must provide the finalised OEM costs and confirm it will provide value for money.

7 SIF Beta Phase – [Improving Energy System Resilience and Robustness] - Summary

This section covers the assessment of Round 2 Beta Phase Applications received into the 'Improving Energy System Resilience and Robustness' Innovation Challenge.

For the Beta Phase, 12 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 22 May 2024 and are listed below.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Expert Assessors Recommended for funding (Yes/No)	Ofgem Decision for funding (Yes/No)
10117736	SF6 Whole Life Strategy	National Gas Transmission PLC	£ 9,790,949	£ 1,290,225	£ 8,500,724	Yes	Yes
10117774	D-Suite	SP MANWEB PLC	£ 8,963,046	£ 897,300	£ 8,065,746	Yes	Yes
10119039	Whole Electricity System Resilience Vulnerability Assessment (WELLNESS)	National Grid Electricity Transmission PLC	£ 6,616,297	£ 662,063	£ 5,954,234	No	No
10121136	Digital Inspector	Cadent Gas Limited	£ 4,084,765	£ 551,610	£ 3,533,155	No	No
10121486	Scenarios for Extreme Events	National Grid ESO Limited	£ 6,033,080	£ 943,958	£ 5,089,122	No	No
10123593	NextGen Electrolysis – Wastewater to Green Hydrogen	Wales & West Utilities	£ 6,795,059	£ 928,767	£ 5,866,292	Yes	Yes
10123649	Multi Resilience	Northern Powergrid	£ 8,317,990	£ 2,062,606	£ 6,255,384	Yes	Yes

		(Northeast) Limited					
10124630	REACT	Scottish Hydro Electric Transmission PLC	£ 5,977,648	£ 619,847	£ 5,357,801	Yes	No
10126543	Connected & Autonomous grid aerial survey, inspection, monitoring and rapid response (CAGSIMR)	National Grid Electricity Transmission PLC	£ 8,412,842	£ 2,649,400	£ 5,763,442	Yes	No
10127702	Phased Switch System	National Grid Electricity Distribution PLC	£ 3,471,533	£ 348,183	£ 3,123,350	Yes	Yes
10127933	CReDo+	UKPN (Operations) Limited	£ 10,896,603	£ 1,089,674	£ 9,806,929	Yes	Yes
10127934	Connectrolyser	UKPN (Operations) Limited	£ 5,559,263	£ 740,256	£ 4,819,007	No	No

8 Expert Assessors Recommendations [Improving Energy System Resilience and Robustness]

8.1.1 10117736, SF6 Whole Life Strategy

Submitted Project description
Based on Alpha Phase findings the Project will further develop selected aspects of SF6 management in the fields of techno-economic comparison for intervention strategies, laboratory-scale greener-disposal of SF6, leakage-rate modelling of SF6 equipment, and long-term, in-service evolution of non-SF6 gas-blends. The feasibility of retro-filling passive gas-insulated assets without OEM support will be fully assessed and a pilot solution developed & deployed (subject to feasibility outcomes). The scalability of energy-efficient disposal of SF6 will be demonstrated. Asset leakage prediction tools will be developed based upon data from existing and newly installed gas-density sensors. Long-term stability of non-SF6 gas-blends will be assessed.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by understanding the robustness in future energy system configurations because it tackles the emissions arising from the use of SF6, by looking at new strategies of managing SF6 in network assets and early adoption of non-SF6 technology to help improve energy system resilience. The Expert Assessors noted that the Project builds on the issues arising from past network and energy innovation Projects.

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers because it identifies cost effective ways for the networks to meet new legal obligations for SF6 management. This will lead to cost savings for electricity customers and avoids the need to spend on expensive switchgear replacement.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it aims to develop novel methods for SF6 leakage monitoring and prediction, retrofilling, understanding of non-SF6 gas blend behaviour and disposal of SF6 using energy efficient methods. The Project findings will help better manage the essential items of network equipment such as switchgear maintenance.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because the Project is likely to deliver capabilities in dealing with SF6 that do not currently exist in the GB energy market. The Project has taken an open approach through the Technical Advisory Group so that all stakeholders in the competitive parts of the market, such as the supply chains for switchgear and monitoring equipment, can be kept abreast of developments.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because the proposed energy efficient disposal of SF6 does not exist yet. Similarly, the retrospective filling option and

		understanding of non-SF6 gas blend behaviour is not currently clear in the GB market. The Expert Assessors did raise concerns on the innovativeness of the work involving data collection using sensors for improved SF6 leakage monitoring and forecasting as it is work that networks are obliged to do in business as usual (BAU). However, the Expert Assessors were satisfied with the Project's response during the interview that they will be using this phase of the Project to link existing sensor data with Internet of Things (IoT) and develop innovative way to leakage forecasting in systematic manner.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because it involves all the GB transmission owners (NGET, SPT and SSEN-T), academia, industry Project Partners as well as a Technical Advisory Board in which a wide range of stakeholders would be involved.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the overall Project to be delivering value for money and be costed competitively because the Beta Phase costs have been well defined and existing laboratory facilities at the Universities of Manchester and Cardiff will be made available for the Project, avoiding additional laboratory cost. While the Expert Assessors have acknowledged the Project has been costed competitively, they did raise concern that there is significant cost after stage gate 1 which remains highly uncertain.

8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered 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 clearly developed Project plan and Project Partner roles are clearly defined. It is evidenced in the Application that risk assessment methodologies and tools have been used, ensuring that mitigating factors have been put in place. The Expert Assessors noted that there was good synergy between the Project Partners during the interview.

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met all the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge by tackling the emissions arising from the use of SF6 through looking at new strategies of managing SF6 in network assets and early adoption of non-SF6 technology to help improve energy system resilience. In the shorter term the Project will help better manage SF6, link existing sensor data with the Internet of Things (IoT), and develop an innovative way to forecast SF6 leakage in a systematic manner. In the longer term the Project will deliver a net benefit to electricity consumers by providing an energy efficient and less carbon intensive way of SF6 disposal. The Project includes a broad range of stakeholders and is considered cost-effective with detailed Beta Phase costs. Despite competitive costing, there is uncertainty about significant costs post-stage gate 1, the Expert Assessors recommended a specific condition to be included which would address these issues. The Project's robust methodology and clearly defined roles provides confidence in progressing in a timely manner, with effective risk assessment and strong synergy among Project Partners noted.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agrees with the Expert Assessors and approves this Project for funding. The Project's innovation lies in new strategies for managing SF6 in network assets and a novel method for energy efficient and less carbon intensive SF6 disposal. The Project delivers a net benefit to electricity consumers by identifying cost effective ways for the networks to meet new legal obligations around SF6 management and avoiding the need to spend on expensive switchgear replacement. The successful delivery of the project will contribute to achieving Net Zero by directly reducing the carbon footprint of the networks through improved management, replacement, and energy-efficient disposal of SF6 gas. Ofgem acknowledges the concerns raised by the Expert Assessors and has sought to address these concerns through the Project specific conditions.

Recommended Project specific conditions

As part of stage gate 1 (set out as Stage Gate 1 in the Project plan), the Project must provide explanation of increased costs for University of Manchester and associated activities costs.

8.1.2 10117774, D-Suite

Submitted Project description

D-Suite is a partially rated Low Voltage (LV) Power Electronic hardware demonstrator that will use a LV design tool, developed in Beta, to optimally place and size the partially rated Power Electronic Devices (PED) hardware. The hardware will be capable of

Mitigating phase voltage and current imbalance.

Managing feeder voltage profiles.

Balancing feeder and transformer loading.

The 59-month Project aims to create a cost competitive solution to traditional reinforcement, that can be rolled out at scale after the Beta Phase trial. The Project will leverage £8.06m of SIF funding to release £795m of total benefit for customers GB-wide.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by improving the understanding of trade-offs between increasing resilience, robustness and the cost implications and consumer trust and acceptability because it aims to balance the phases of the voltage and optimise the electrical network in distribution networks to increase efficiency, reduce losses and enhance useful life of electrical equipment. The Project will improve the resilience and adaptability of the networks and offset capex costs by developing Low Voltage (LV) design tool which optimally places, sizes and simulates D-Suite Power Electronic Devices (PED), to maximise their utilisation and technical benefits and minimise their size and cost.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers because it aims to improve system reliability by reducing unplanned outages, reduce the cost of operating and maintaining the LV network. This will be achieved through the optimal deployment of partially rated Power Electronic Devices (D-ST, D-SOPs, D-STATCOMS) at the point of connection and consequently reduce electricity bills to consumers. The Project has articulated that more household renewable generations and Low Carbon Technology (LCT) can be connected as a result of

		the optimised LV network, helping reach Net Zero.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it aims to develop a novel LV design tool for optimal placement of PEDs and the development and deployment of partially rated PEDs (down to 30kVA). The Project builds on a range of previous innovation Projects and aims to trial on three actual Low Voltage networks which is a step forward in innovation. The learning experiences are expected to lead towards the achievement of business as usual.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to undermine the development of competitive markets because the LV design tool pseudo code, input data and detailed implementation methods will be shared with other UK DNOs, under an open licence. The development of the partially rated Power Electronic Devices will be from a range of companies therefore giving a wider pool of suppliers. The Expert Assessors also noted that this technology will deliver capabilities which are not currently available within the GB energy sector.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because the development and deployment of partially rated PEDs at the scale proposed is not BAU practice. Expert Assessors also noted the risks associated with the

		development of automated LV design tool deployment of partially rated PEDs may not fully address the new challenges of managing LV networks in Net Zero scenario, however this should be offset by single-phase loads being balanced across all the three-phases.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because the proposal includes a mix of networks, businesses, and research collaborators. The Expert Assessors noted that as the Project is developed from past SPEN and UKPN innovative developments such as Angle-DC, LV-Engine, FUN-LV, Active Response and SIF-Alpha Projects, some of their Project Managers were involved in the formulation of this proposal ensuring the knowledge from previous work is transferred.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to represent value for money to deliver the desired D-Suite LV Design tool and bring the direct and indirect benefits to consumers. The Project could articulate the material cost, deployment plan and impacts on consumers more clearly and a condition is recommended to ensure this is brought out in the project's life cycle, if funded.
8: Projects must be well thought through and have a robust methodology so that they	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because a comprehensive

are capable of progressing in a timely manner.		approach and Project plan are articulated, demonstrating a solid strategy for Project management. Additionally, the key management and technical risks have been identified and are outlined in a risk register and the Project has presented a Gantt Chart which shows the work package relationships as well as their dependencies.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge by aiming to balance the phases of the voltage and optimise the electrical network in distribution networks to increase efficiency, reduce losses and enhance useful life of electrical equipment. The development of the LV design tool will optimally place, size and simulate D-Suite PED, to maximise their utilisation and technical benefits and minimise their size and cost. The Expert Assessors did raise concerns that the Project did not clearly articulate the material cost, deployment plan, and impacts on consumers in the Application and during the interview process. The Expert Assessors recommend a specific condition to be added to address this issue. The Project is innovative as other Projects have not explored partially rated PED. Additionally, the Project aims to develop a new product and tool that is not available in the GB energy market, and which will increase the Network's ability to reduce the negative impact of LCT integration, improve of the stability of the GB LV network as more Distributed Energy Resource (DER) connect and consequently help environmental sustainability and the move to net zero.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agrees with the Expert Assessors and approves this Project for funding. Ofgem agrees that the Project's innovation lies in novel LV design tool for optimal placement of PEDs and the development and deployment of partially rated PEDs (down to 30kVA) to increase efficiency, reduce losses and enhance useful life of electrical equipment. More household renewable generations and LCT can be connected to LV network as a result of the optimised LV network and lead to more carbon efficiency and savings and help reach a net zero energy system. Ofgem acknowledges the concerns raised by the Expert Assessors and has sought to address these concerns through the Project specific conditions.

Recommended Project specific conditions

As part of the quarterly review meetings, the Project must provide comprehensive and detailed explanations on the material cost, deployment plan, and impacts on consumers. This should also be provided as part of the updates to the quantitative analysis of their costs and benefits.

8.1.3 10119039, Whole Electricity System Resilience Vulnerability Assessment (WELLNESS)

Submitted Project description

Physical climate risks and impacts will become increasingly critical to our existing and planned electricity infrastructure in the coming years and decades as we transform the system to meet net zero targets.

The WELLNESS Project will support decision makers across Great Britain's electricity systems as they plan and deliver interventions, upgrades, and routine maintenance to long lifecycle, high capital cost assets. We aim to provide decision support in the form of quantitative metrics developed from advanced modelling tools, hosted within a systemic resilience framework that ensures all components of a resilient system are consistently and transparently captured and valued.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by incorporating resilience and robustness as key and measurable considerations into future multi-energy system design because it endeavours to improve network resilience by developing novel, forward-looking modelling techniques. These techniques will help networks, asset owners and policy makers plan for physical interventions against extreme weather to assets.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers, as consumers could benefit from fewer outages caused by weather incidents. There is potential for indirect financial benefits be generated due to greater network efficiencies and fewer repairs (leading to lower overall maintenance costs). It will also lead to better preparedness, improving operational costs. The Project's model covers England and Wales; however, the benefits are focussed upon the geographic area that the lead transmission and distribution network Project Partners are responsible for. As the Project moves into business as usual and more DNOs use the output solution the benefits can be extrapolated nationally.

		The Expert Assessors had to probe further from the Project to understand the full scale of these wider benefits, as the benefits were not clearly identified. Once the Project was able to clearly explain the benefits, the Expert Assessors were satisfied.
3: Projects must involve network innovation.	Not met	The Expert Assessors concluded the Project was insufficiently focussed upon network innovation for a Beta Phase Project. The core innovation described was with the Met Office's approach to weather data processing and forecasting. Which is within their operational remit, rather than significant changes to resilience planning and response activities which would be completed by the Project, resilience planning, in any event, is considered business as usual for network operations. The Expert Assessors observed that the main Project innovation is with the data provided by the Met Office and would like to see more substantive activities designed against how the data innovation would manifest itself in significant novel activities for network operations.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to undermine the development of competitive markets because the tools and frameworks will be open access, enabling other TOs and DNOs to use them at the Project's conclusion. The Expert Assessors felt this was

		potentially mitigated by the Project's use of the Monte Carlo technique. This is a method for simulating data to fill in gaps.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because it shifts decision tools and data processes from the network operators to other digital and data infrastructure interface operators. The Expert Assessors commented that although similar tools had been developed in other countries, the Project was novel for GB. GB energy networks and retailers had not assessed the system's ability to withstand extreme weather shocks. The Expert Assessors did raise some questions on how much the Project built on existing Projects that have already been delivered or were in progress. There were concerns that this Project could be duplicating efforts. Some Expert Assessors did question whether the Project was truly innovative. It could be seen as business as usual and/or funded via different mechanisms due to the overlap with other Projects.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because it has leading academics from domestic and international universities. These

		include the University of Manchester, Imperial College London, the University of Cyprus, and Woxsen University. Each academic brings expertise on novel theoretical/modelling techniques which are being used to develop the Project. Additionally, the Project has both transmission and distribution networks on the Project team as well as a third party to oversee Project management activities.
7: Projects must provide value for money and be costed competitively.	Not met	The Expert Assessors did not consider the Project to be delivering value for money and be costed competitively. The Expert Assessors considered the justification of value for money as unclear and were unclear as to how the cost-benefit analysis figures had been generated. When asked about this, the Project team were unable to explain the methodology during the interview, citing that there are currently no baseline costings to act as a counterfactual for network resilience. Additionally, the Expert Assessors were not satisfied that the cost reduction return to the consumer was evidenced sufficiently. The Expert Assessors raised this during the interview but were still not satisfied with the responses provided. The Project also failed to engage with investors, insurers, or any other stakeholders from the

		financial sectors who could contribute value to the cost-benefit analysis. Due to these reasons, the Expert Assessors did not consider the Project to have met this 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.	Met	The Expert Assessors considered the Project to have a robust methodology. One of their concerns was the lack of specificity and detail in the Project plan, which appeared generic. Despite the above, the Expert Assessors had no concerns about the Project's deliverability. It was noted that work packages, work package owners, Project milestones, a clear Project plan, and a sensible risk register had all been provided. As a result, the Expert Assessors considered the Project to have a robust methodology and were confident it could progress in a timely manner.

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
The Expert Assessors did not recommend the Project for funding and the Project did not meet all Eligibility Criteria. The Expert Assessors considered the Project's scope to be too narrow given it is assessing whole-system resilience. The Project team were also unable to evidence the results of their cost-benefit analysis in the interview. The Project had not provided the required detail in the written Application (namely explaining the baseline used to quantify the benefits).

Additionally, the Project failed to engage stakeholders from financial sectors who could play a key and important role in supporting the Project's cost-benefit analysis. The Project was also unable to definitively say which tools and software were to be utilised and this detail was missing from the written Application.

Finally, the Expert Assessors felt the Project could be seen as business as usual due to existing work that has been done in this area. The Project does not build on past and ongoing work carried out on network resilience, putting it at an unnecessary disadvantage and creating the risk of duplication.

Whilst the Project failed two Eligibility Criteria, the Expert Assessors praised the impact the Project would make, and the wide range of expertise from leading academics. They encouraged the Project team to consider a resubmission once the above points had been addressed as the Project outcomes, if delivered effectively, would be attractive.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem has agreed with the Expert Assessors that this Project should not be funded. Ofgem agrees with the Expert Assessors views that the Project does not meet Eligibility Criterion 3 ('Projects must involve network innovation'), and Eligibility Criterion 7 ('Projects must provide value for money and be costed competitively'). The Project is not seen to be sufficiently additive to existing and previous activity on network modelling to plan for climate resilience. The Project is not seen as value for money as the cost-benefit analysis was not explained to an acceptable level in the written Application and the Project team struggled to explain the cost benefit methodology in the interview.

Recommended Project specific conditions

N/A

8.1.4 10121136, Digital Inspector

Submitted Project description
Digital Inspector (DI) will be a platform that tracks, captures and processes all welding related data for gas pipeline construction Projects. The Project will capture the pre-weld approval and qualification process, enabling more efficient interactions between network and contractor. Onsite welding activities will be tracked, validated (minimising errors, rework and costs) and monitored in real-time, giving full visibility of Projects for both contractor and network. A comprehensive digital fabrication record, for every weld performed with DI, will gradually create a digital map of network assets, that can be queried to fully understand the composition and fabrication of an asset.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by improving the understanding of trade-offs between increasing resilience, robustness and the cost implications and consumer trust and acceptability because it has the potential to improve understanding of robustness and operational response using digital techniques in gas networks.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors consider this Project to have clearly identified potential to deliver a net benefit to gas consumers because of the Project's assessment of the likely indirect financial savings that will be generated. The solution has the potential to reduce the amount of time and

		resource for pipe maintenance activity. This is achievable through the improvement of process efficiency and efficacy, and the reduction of human error in record keeping through a digital solution. Additionally, financial waste is avoidable as networks will be able to identify and repair potential pipe failures before they happen. The Expert Assessors highlighted the data could be used for other scenarios. This includes better information on how welds of different types and materials perform over time, improving welders' ability to understand which welds/materials are best used in which scenarios, and when certain welds are likely to need maintaining. It was noted that if the data collected was shared with all networks and all networks had the opportunity to contribute data, the potential for gas consumers to receive benefit increases. A Special Condition identified and recommended was the need for the Project to triage data openness and explore individual weld identification numbers and dissemination of that data.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is developing a solution that does not presently exist for the gas networks. There was concern that this solution was more BAU than innovation. The Expert Assessors took the view that it was marginally innovative for the gas networks in the

		context of the SIF challenge addressed. This is because monitoring of this type is yet to take place in the gas sector, despite being the type of activity that would be observed to be standard incremental operational improvement for other sectors. However, the Expert Assessors did recognise that the ongoing requirement for this solution is uncertain as extent of iron piping weld repairs and the locations that will be necessitated in the future of the gas networks is uncertain pending policy decisions in 2026. There are still uncertainties around what the gas networks will be used for, as well as their configuration, the gases being used, and the materials being used for piping in a Net Zero scenario. This means there is no way to know how much a monitoring solution of this type will be needed. These variables could dramatically alter the payback period and cost-benefit analysis of the Project.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to have the potential to undermine the development of competitive markets because opportunities for the development of this market is limited. There are a likely to be few competitors, if any. Consequently, the risk of undermining market forces was viewed as low by the Expert Assessors in the context of this proposal. However, steps would need to be taken to avoid supplier lock-in, such as developing Application programme interfaces (APIs), and

		software whitepapers, alongside competitive procurements for services in business as usual.
5: Projects must be innovative, novel and/or risky.	Not Met	The Expert Assessors considered this Eligibility Criterion to be not met. They concluded that they did not consider the Project to be innovative and novel as this kind of digital monitoring is business as usual in other sectors. The Expert Assessors observed that the Project was simply a logical and intuitive next step rather than innovation.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders. The Project has a number of key stakeholders, including a gas distribution network (Cadent), the gas transmission network (National Gas), a globally leading Expert body on welding (TWI), a software and hardware Expert in welding monitors (Triton Electronics), a contractor specialising in pipeline welding Projects (United Living Infrastructure Services), and a consultancy specialising in high hazard industries (Human Systems Interactions). The Expert Assessors noted that the Application would have benefited from an Insurer, who could confirm the lower premiums the cost-benefit analysis is predicated on for example quantifying cost savings on premiums (because of the safer welds) as part of the first stage gate.

		There was also some concern about the lack of other gas networks involved in the Project.
7: Projects must provide value for money and be costed competitively.	Not met	The Expert Assessors did not think this Project delivers value for money and is not costed competitively. Significant assumptions were used for forecasting extent of need for future weld inspections which needed greater justification. This made it difficult to accept the benefits without high levels of certainty. Furthermore, the Project team had only costed highest quality and most expensive materials, rather than considering a value for money assessment on more cost-effective approach which could still deliver requirements.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Not met	The Expert Assessors did not consider the Project to have a robust methodology, and this did not give them confidence that the Project will be capable of progressing in a timely manner. This included concerns with the rigour of the Project management documentation, such as the approach to costings and a lack of detail overall. Additionally, the Project requested a single lump sum rather than aligning portions of funding with stage gates throughout the Project. This opacity made it impossible for the Expert Assessors to confirm the Project is value for money.

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors agree that the Project has not met all the Eligibility Criteria, and that this Project is not recommended for funding.

The Expert Assessors appreciated the Project team's efforts to develop cost-benefit analysis despite a lack of data on future networks. However, the lack of detail provided on costs and the vague assumptions provided on benefits forecasted did not give them confidence that this Project represents good value for money at this time.

The benefits of the Project were described as providing opportunities to reduce human error in operational monitoring, whilst supporting welder upskilling through better understanding of welds in different circumstances. Additionally, the Project had the potential to avoid financial waste through more efficient and effective network maintenance activity. This is especially true if the data collected is shared with all networks and all networks can contribute.

The Project was not seen as innovative, novel and risky for the gas networks as it is largely an incremental improvement on current operational processes. The Expert Assessors considered it to be a natural next step for the gas networks. The Expert Assessors were pleased with the wide range of expertise contributed by the many Project Partners but would have liked to see more engagement from an insurer to validate the cost-benefit analysis.

Expert Assessors were not convinced by the robust Project methodology, and they did not find that the Project was providing value for money and costed competitively. This was due to Cadent's Project management work package which accounted for around a quarter of the Project costs, did not include a breakdown of activities, and requested a single lump sum rather than aligning portions of funding with stage gates throughout the Project. This opacity made it impossible for the Expert Assessors to confirm the Project is value for money.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem has agreed with the Expert Assessors that this Project should not be funded. The Expert Assessors agreed that the Project did not meet Eligibility Criteria 5 ('Projects must be innovative, novel and/or risky'), Eligibility Criterion 7 ('Projects must provide value for money and be costed competitively') and 8 ('Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner'). Ofgem agrees on the basis that the Project was not novel or risky, the Project management costs were an unusually high percentage of the overall Project costs, and the Project did not provide a breakdown to explain why. The costs of Project management were also not spread across the Project and its stage gates; rather it had been requested at a single point in the Project.

Recommended Project specific conditions
N/A

8.1.5 10121486, Scenarios for Extreme Events

Submitted Project description
Extreme events are low probability, high impact events that compromise energy security and could cause long-term economic consequences. Climate change, geopolitical shifts and energy decarbonisation are increasing our vulnerability to extreme events. Government currently lacks comprehensive approaches to quantify resilience - a proactive, customer-outcome focussed, whole systems approach to resilience planning is required. Scenarios for Extreme Events will model the resilience of the GB whole energy system and seek out its vulnerabilities. It will quantify the impacts of extreme scenarios to electricity and gas consumers, providing NESO and subsequently government, with the evidence to implement cost-effective resilience interventions and strategies.

Eligibility Criterion	**Met / Not Met**	**Additional Justification**

1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors all agreed that the Project has addressed the Innovation Challenge because the focal outcomes of the Project aim to develop better capabilities for the Electricity System Operator preparing and responding to low likelihood, but high impact events developing resilience and robustness.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Not Met	The Expert Assessors did not consider this Project to have clearly identified a potential to deliver a net benefit to electricity consumers because the core outputs of the Project are not distinctly more innovative and ambitious beyond incremental improvements in impact scenario creation (for which there is a lot of academic modelling and existing literature). The Expert Assessors considered that there were significant assumptions associated with the benefits meaning that the benefits to consumers were not sufficiently clear.
3: Projects must involve network innovation.	Met	The Expert Assessors considered the Project to involve Network Innovation due to it being led by the Electricity System Operator (ESO) with the intention to create a product to be used for ESO decision making. However, they questioned if significant levels of innovation were being delivered compared to that which should be expected within business-as-usual activities.

4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to undermine the development of competitive markets because the intended outcome is a tool to be used by the Electricity System Operator, who does not engage in competitive market activities. The Expert Assessors did cite the ongoing need to deliver competitive third-party procurements for modelling or scenarios to service the solutions might be needed, but this can be adhered to through following typical procurement processes.
5: Projects must be innovative, novel and/or risky.	Not Met	The Expert Assessors did not consider the Project to be innovative, novel and risky. The Expert Assessors agreed that while there were some elements of novelty in the approach, these were not sufficient for the Eligibility Criterion to be met. The Expert Assessors considered that there were existing metrics and similar approaches to this type of modelling and could not differentiate where the innovation and novelty of the Project was. Additionally, the Expert Assessors commented that limited engagement from the DSOs had the effect of reducing the riskiness element.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because the Electricity System Operator, Transmission operators, distribution network operators, energy modelling expert

		capabilities, and software engineering companies are all represented. The Expert Assessors did take the view that the Project could be strengthened by additional commentary on the involvement of telecoms and other sectors in addition to further expanding on the dissemination plans to ensure meaningful engagement with the stakeholders detailed.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to would deliver value for money and is costed competitively because successful mitigation of extreme event impacts is likely to realise significant benefits to consumers and society more widely. However, the Expert Assessors challenged the ability to accurately evaluate the potential benefits, when by the Project's own definition, the actual impacts of these events are not understood thoroughly. The Project recognised this and had discounted their benefits significantly to address this concern and accordingly the Expert Assessors were satisfied that this Eligibility Criterion was met.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner based on the material provided. Overall, the Expert Assessors determined that the scope of work for integrating modelling and response for

		other infrastructure types (such as Telecoms and Water) could have been outlined more clearly. There were varying levels of detail between the written Application and interview. Furthermore, the Project team could have further expanded on the distinction of the scope of work for developing common technical data infrastructure between interdependent Projects. On balance, the Project was sufficiently well thought through to ensure that it was capable of progressing in a timely manner and the Expert Assessors considered the Eligibility Criterion to be met.

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
The Project did not meet all the Eligibility Criteria and the Expert Assessors did not recommend the Project for funding. The Expert Assessors considered that while the aims of the Project were aligned with the Innovation Challenge, the Project could not sufficiently demonstrate that there was a clear benefit to electricity consumers and Eligibility Criterion two was not met. This was because the Expert Assessors were not convinced that the Project would result in network investment decisions and ultimately lead to savings for the consumer. Additionally, the Expert Assessors found that the Project, while having some novel elements, was not sufficiently innovative, novel and risky for Eligibility Criterion five to be met.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND

Ofgem has agreed with the Expert Assessors that this Project should not be funded. Ofgem agrees with the Expert Assessors that the benefits to consumers were not sufficiently clear from the Application and that the Project was not found to be innovative, novel and/or risky. Ofgem agrees that the Project management costs were an unusually high percentage of the overall Project costs, and the Project did not provide a breakdown to explain why Project costs were requested at a single point in the Project rather than being spread throughout the life span of the Project.

Recommended Project specific conditions
N/A

8.1.6 10123593, NextGen Electrolysis – Wastewater to Green Hydrogen

Submitted Project description
Wales and West Utilities are partnering with HydroStar, Welsh-Water and NGED to look at two demonstrator Projects required from new electrolyser systems and the associated electrolyte that ensures resilience of hydrogen supply across the network, giving best value-for-money and energy-security within WWU's network, along with other UK-wide Gas-Distribution-Network (GDN) customers. Current electrolysers focus on stack-efficiency and hydrogen purity without considering real-world manufacturing and operational constraints, and the high costs associated. This Project focusses on utilising impurified-water, e.g., rainwater, storm-overflow and industrial process wastewater as feedstock, which reduces operational constraints and costs for customers whilst enabling wide-scale uptake of low-carbon hydrogen

Eligibility Criteria	Met / Not Met	Additional Justification

1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it has potential to significantly reduce the barriers to low-cost hydrogen production, whilst simultaneously reducing the environmental impact and geographical limitations of large-scale production of the gas. This aligned with one of the aims of the Innovation Challenge strengthening the UK's energy system robustness to support efficient roll out of new infrastructure.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered the Project to have demonstrated a clear benefit to gas consumers because it has demonstrated clear potential to reduce operational constraints and costs for customers whilst enabling wide-scale uptake of low-carbon hydrogen. A reduction in initial Capex costs for the production of green hydrogen that utilises untreated water could result in improved accessibility of hydrogen across the network and a stimulated hydrogen economy. This could have significant environmental and system benefits which would flow onto the consumer in a scenario where hydrogen for industrial decarbonisation is taken forward. The Expert Assessors noted that the Project gave a strong qualitative approach to benefits in their answers and commented that these could have been supported by more quantified measures.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation as it demonstrated the potential capability of producing green hydrogen to

		support network decarbonisation, plus the Project specific aim of enhancing the range of water input streams that can be used to feed the electrolysers. Additionally, the Project cited the network integration elements including alignment opportunities for decarbonising industrial clusters. In cases where hydrogen lowers the overall system cost, or brings necessary functional benefit to the system, there is network benefit.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider that this Project would be likely to undermine the development of competitive markets because it is aiming to increase the competitive markets through decentralisation of production of green hydrogen, with an aim to lower production costs for this zero-emission gas. Deployments are at the micro-scale at this stage, and the range of stakeholders involved, as well as the dissemination plan, provides confidence to the assessor that information sharing will prevent undue competitive barriers from forming in the mid-term.
5: Projects must be innovative, novel and/or risky.	Met	The Project is considered innovative and risky because it demonstrates the multiple different hydrogen uptake scenarios which could be experienced in the development of an innovatively operated, flexible and distributed gas network. The essence of the Project is the testing of a novel technology, as the technology process removes the need for water purification and addresses the issues of rare and expensive metals by utilising stainless steel electrodes. There is significant

		technology risk in the proposed electrolyser system, in particular around its lifetime, cost and performance, and how this is impacted by different water purity levels. Additionally, there is a market risk around hydrogen, with the direction of travel for a hydrogen economy being uncertain.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because the Project brings new industry Project Partners Yeo Valley and Welsh Water and two new academic sub-contractors, strengthening delivery and expertise being applied to the Project. The Project offers a broad range of expertise and experience from industry is welcomed and are vital for successful Project delivery through providing operational sites to trial blending.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be value for money and costed competitively because the costs appear appropriate and in line with industry norms. The resourcing costs are reasonable, and the clear roles and responsibilities outlined provide confidence to these costings and what is being delivered. The Expert Assessors did find some of the costs in relation to materials to be on the higher side but on balance viewed the Project as providing value for money.
8: Projects must be well thought through and have a robust	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely

methodology so that they are capable of progressing in a timely manner.		manner because the Project plan and has been thoroughly completed, with clear work packages and logical stage gates that help to de-risk the Project. The detail provided in the risk register and resource requirements is exceptionally good and demonstrates the consortium have mitigated any liability exposed to the Project, however the Expert Assessors noted that the mitigation of technical risk would need to be effectively managed in monitoring. The Expert Assessors recommended that a stage gate be added that was related to the functional performance of the electrolyser as there is inherent technical risk due to the novelty of the electrolyser.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors recommended the Project for funding as all the Eligibility Criteria were met. The Expert Assessors considered that the Project met the Innovation Challenge and made a strong case for the innovation justification, capturing the problem and articulating the solution effectively. The solution has the potential to substantially reduce Capex costs, reducing the cost to the consumer and resulting in environmental benefits. The proposed solution offers removal of water treatment processes, providing flexibility and resilience for the production of hydrogen, which could provide resilience for the wider system. The Expert Assessors were impressed with the Project's approach to Project management but recommended that a technical stage gate addressing the efficiency and output of the electrolyser would adequately mitigate risks in relation to technical viability.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors and approve this Project for funding. Ofgem agrees that the Project presented the potential to substantially reduce Capex costs which in turn reduces the cost to the consumer with the addition of environmental benefits. The Project also provides flexibility and resilience for the production of hydrogen by offering solutions for the removal of the water treatment process.

Recommended Project specific conditions
As part of the Kick Off Meeting, the Project must suggest a suitable timeline for an additional stage gate to be added related to the functional performance of the electrolyser as there is an inherent technical risk due to the novelty of the electrolyser.

8.1.7 10123649, Multi Resilience

Submitted Project description
Resilience is increasingly important as customers rely more on electricity for heat and transportation, with greatest value in rural locations that have a heightened risk of outage. Proliferation of Low Carbon Technologies across LV and HV systems present opportunities, if coordinated appropriately, for delivery of resilience services that maintain customer supply during unplanned grid outages. Previous Projects have demonstrated separate approaches via LV-connected and HV-connected resilient DERs. Coordination of such solutions can enhance the value case of resilience. The Project will compare and contrast technologies and optimise hybrid Applications of the two approaches to deliver cost-effective resilience to customers.

Eligibility Criteria	Met / Not Met	Additional Justification

1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors agree that the Project is well aligned with the Innovation Challenge by developing technical, organisational and commercial innovation including using novel multi-energy system configurations for increasing system resilience because it will utilise microgrid and battery system control systems to provide service provision to consumers, particularly in rural areas, during disruption and outage events.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors agree that there is a clear potential for the Project to deliver benefit to electricity consumers through delivery of improved resilience and reliability of services. The Expert Assessors did question the Project's assumption that consumers would be prepared to incur additional costs for this, and the Project would need to consider the affordability and apportionment of costs for the BAU solution. The Project showed a clear differentiation of benefits accrued within the benefits case and the Expert Assessors were convinced by the justification.
3: Projects must involve network innovation.	Met	The Expert Assessors agree that the Project does involve network innovation because it will enable improved procurement by the distribution network operators and enable proxy control of resilience services from battery systems. Other distributed energy resources could also be utilised if they happen to be available around trial sites,

		but they are not planned within the scope of delivery.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider that this Project is likely undermine the development of competitive markets because the utilisation of the battery system is separate to the existing markets and revenue streams leveraged by grid scale battery storage systems, and therefore the Project will not disrupt the operation of competitive markets.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors agree that the Project is innovative and novel because of the use of multiple microgrid control at the feeder level and operating islanded resilience protocols and control systems at the LV level is novel and innovative. The configuration of the Multi Resilience microgrid solution will enable continued provision of services over mid-time period during outage periods. The Expert Assessors strongly challenged the Project on the additionality and differentiation of the Project from the related earlier innovation Projects that this has followed on from and were comfortable that the Project is very additional and distinct from those activities.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors agree that the Project includes participation from a range of stakeholders because there is sufficient expertise for the scope of work. There is representation from an additional network, a technology

		provider, and smart grid small innovative business. The Expert Assessors would welcome the inclusion of further cyber security expertise focussing on the security of embedded OT software for the operation of the solution.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered that Project would deliver value for money and that it is costed competitively because the cost savings projected are credible and significantly greater than the potential costs of Project delivery. These benefits would be particularly significant should the learnings be harnessed to enable this to become business as usual. There are also unquantified secondary savings such as enabling more and earlier connections and increased potential connection and revenue streams for distributed energy resources. The Expert Assessors raised questions around the costs of battery repurposing compared to purchasing and utilising new systems, given the ongoing market cost reductions in battery storage systems. The Project provided a response giving assurance that an assessment of best value had been made, and that the costs of repurposing battery systems for these purposes was cost-preferable and provides flexibility of needs deployment for the selected trial site. Furthermore, the Project gave a good rationale of how the usage of repurposed assets de-risks the

		delivery of the Project and mitigates any potential supply chain delays. The Expert Assessors felt this was a good justification and rationale for delivery at best value. The Expert Assessors would have liked greater understanding of subcontractor costs for the academic research Project Partners and for battery operators, but evaluation of this could be handled by competitive procurement and stage gate assessments.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The Expert Assessors challenged whether some aspects of scope could be considered and addressed more, in particular the evaluation of cyber security requirements for operation of integrated microgrids. Furthermore, Expert Assessors were keen to understand how standards and industry protocols were being investigated and shaped, with the Project team demonstrating good understanding of the standards for elements such as communication protocols for operation. The Expert Assessors recognised that the use of stage gates had been deployed to de-risk activities as the Project progresses, but more detailed development of the success criteria for

		consideration (or not) at the early stage of the Project should be required. Furthermore, the Expert Assessors probed the reasons for needing a long-extended period to undertake trial analysis but were comfortable with the response that this would also include integration of data outputs into models, systems, and business operations.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors agree that the Project is aligned with the Innovation Challenge because it aims to utilise microgrid and battery system control systems to provide service provision to consumers, particularly in rural areas, during disruption and outage events. The Expert Assessors agree that the Project could deliver a net benefit to electricity consumers through benefit to consumers through delivery of improved resilience and reliability of services. The use of multiple microgrid control at the feeder level and operating islanded resilience protocols and control systems at the LV level is novel and innovative. The Expert Assessors were satisfied by the Project's clear demonstration of how Multi Resilience and its potential benefits are distinct from the previous Micro Resilience Project.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors and approves this Project for funding. Ofgem finds the Project's innovation lies in its utilisation battery system control systems in microgrids. This will deliver benefits to both electricity customers as it will deliver resilience and reliability of services

to consumers. Additionally, Ofgem finds the Project could deliver a net benefit to electricity consumers by improving resilience and reliability of services.

Recommended Project specific conditions

Prior to the Funding Party beginning any works on the Project, it must provide to the monitoring officer a breakdown of how the Project plans for consumers to incur additional costs and how affordability and apportionment has been considered for BAU.

Prior to the Funding Party beginning any works on the Project, it must provide to the monitoring officer a breakdown of how the Project plans to include further cyber security expertise which focusses on the security of embedded OT software for the operation of the Multi Resilience solution.

As part of stage gate 1, the Project must provide the monitoring officer with a breakdown of the subcontractor costs for their academic research Partners and for battery operators.

8.1.8 10124630, REACT

Submitted Project description

REACT (Rapid Evaluation Areal Connection Tool) aims to create a geographical planning tool providing a diverse group of stakeholders with a unique understanding of the complexities of upgrading the power grid to deliver Net Zero. Visualising power-flows and the contracted substation pipeline in the context of other decarbonisation pathways, REACT will help users identify the best possible locations to connect to the network and streamline the connection process where limited pre-Application information impacts formal Applications. Optimising the location of demand (e.g., hydrogen) and generation will increase the efficient use o existing assets and the effective roll-out of new infrastructure.

Eligibility Criteria	Met / Not Met	Additional Justification

1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by improving the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it because it will support the efficient rollout of new infrastructure and ties into the wider context of increasingly electricity demand and the need for rapid decarbonisation.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to gas and electricity consumers because of reduced curtailment, faster connection times, optimal and efficient network investment and reduced direct, indirect carbon, and savings to consumers.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it has identified a problem for both TOs and connecting customers in that the process and available data is currently suboptimal for connecting customers and network investment. However, the Expert Assessors did consider that there are areas like demand flexibility and long duration energy storage (LDES) that needs further evaluation and consideration into the Project.
4: Projects must not undermine the	Met	The Expert Assessors did not consider that this Project is likely to undermine the development of competitive markets because the tool it is

development of competitive markets.		developing will be available to all connecting customers and, ultimately, all GB TO network customers and the Project does not preclude competitors from offering similar services. However, the Expert Assessors did raise issues around the resilience of background intellectual property to ensure the Project is protected if one or more Project Partners exit the Project prior to completion and for post Beta public sharing of information. The Project affirmed that the Project retains the background IP if this occurs.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative because it is bringing a new and holistic approach to a longstanding problem. The Project was able to show a detailed risk register on how it would tackle this risk. The Expert Assessors did question whether the Project was innovative as information such as capacity maps and queue information were already available but agreed there was enough network innovation as it was bringing these elements together in a novel way.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because of an appropriate degree of representation from stakeholders represented across the energy system. More detail on the actual users engaged and the terms of reference for the user groups would have been

		helpful and should be provided as a condition of the Project.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be delivering value for money and be costed competitively because the costs are reasonable considering the scope of the work, and the contributions in kind are considerable. The Project also provided additional clarity by providing a list of the sub-contractors and their costs.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project methodology is well thought through, adheres to agile principles and the partners have a track record in delivery.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project effectively addresses the Innovation Challenge because it will support the efficient rollout of new infrastructure and ties into the wider context of increasingly electricity demand and the need for rapid decarbonisation. However, the Expert Assessors did note that an extension of the number of use cases beyond the original hydrogen focus was required by the Project and have proposed a Project specific condition to this effect. The Expert Assessors did question whether the Project was innovative as information such as capacity maps and queue information were already

available but agreed there was enough network innovation as it was bringing these elements together in a novel way in an important area of the network connections process.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND
Ofgem does not agree with the Expert Assessors and have not approved this Project for funding because, in Ofgem's view, it did not meet Eligibility Criterion 5 (Projects must be innovative, novel and/or risky), because it did not consider gathering data on capacity maps and queue information is innovative, novel or risky as this is viewed as being part of business-as-usual operations.

Recommended Project specific conditions
N/A

8.1.9 10126543, Connected & Autonomous grid aerial survey, inspection, monitoring and rapid response (CAGSIMR)

Submitted Project description
Project CAGSIMR addresses the lack of high-quality asset condition information about the UK's electricity grid by deploying an advanced autonomous Beyond Visual Line of Sight drone solution that can efficiently capture asset condition data, optimised for AI/ML analysis, at national scale. The Project will enable network licensees to access significantly more and higher quality asset condition data, facilitating more strategic maintenance work, resulting in a more resilient and robust grid capable of supporting more efficient roll-out of new infrastructure. The Project builds upon previous NIA Projects, VICAP and BVLOS, and involves key partners NGET, NGED, SSEN-T and sees.ai.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by developing technical, organisational and commercial innovation including using novel multi-energy system configurations for increasing system resilience because the Project aims to improve the network resilience and robustness through enhancement of network asset condition data using Beyond Visual Line of Sight (BVLOS) drone survey. The use of autonomous drones, certified for BVLOS flight and surveying, coupled with enhanced Artificial Intelligence (AI) and Machine Learning (ML) data analysis will improve maintenance efficiency, fault finding and decision making for better grid management.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers because better data could result in more effective network management, improved system availability and more cost-effective use of maintenance resources and planned interventions, which will lead to reduced costs for electricity consumers. The Expert Assessors noted that during the interview, the Project said that the existing options do not provide scalability to improve system level efficiency.

3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it would set several precedents and is driving progress in regulation regarding automated BVLOS drone flights in non-segregated airspace. The Project is also innovative because it goes beyond the standard industry practices in energy networks regarding remote piloted (unmanned) drones with the new control system to monitor the network asset. The Expert Assessors noted the innovation will also come from AI/ML in a later phase once the required data is collected.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider that this Project is likely to undermine the development of competitive markets because the Project establishes the rules under which unmanned autonomous drones could be operated to collect data across the networks, which provides the ability for others to use the rules and data. One Expert Assessor did raise the concern that a Project Partner, Sees.ai, would become the only provider offering this solution, compromising the competitive market. To address this concern during the interview, the Project conceded that whilst that Project Partner's ability to prove this capability within the Project does enhance its market position, that does not preclude other market entrants competing to provide drone services in BAU.

5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because there is a distinct risk of Civil Aviation Authority (CAA) regulation and some risks on wayleaves if the landowners challenged the new drone survey. The Project represents a fundamentally new approach to network asset condition monitoring and data collection which is not currently used. The drone's control system is also innovative and novel.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders as it has expanded from earlier NIA work between the Project lead (NGET) and the technology developer (sees.ai) to include other network companies (NGED and SSEN-T). Apart from the network companies directly involved in the Project, the proposal also involves a range of other stakeholders such as CAA, Ofcom and landowners, all of whom are critical for the Project success. The Expert Assessors suggested that it will be helpful to establish a mechanism for the communication with the reminder of Transmission Operators and Distribution Network Operators.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be delivering value for money because the Project articulated a clear pathway to BAU adoption and there is an apparent significant private sector financial contribution to Project costs (>30%). Overall, the Project provides

		value for money as potential benefits, both direct and indirect, greatly outweigh the potentially inefficient Project cost. The Expert Assessors did raise concerns that in the discounted market rates submitted one of the Project Partners appears above average even after the discount is factored in and recommend that Ofgem and IUK do financial due diligence. Separately, given the value of data (estimated to be £1.2M) to the network companies, the Expert Assessors felt that they should be contributing more than 10% minimum as this Project seemingly provides a great benefit to them in addition to long term innovation gains it might unlock.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The Project is building on an established team dynamic with clear goals, clear breakdown of scope and tasks between the team and an appropriate delivery plan. The Project methodology and the Project Partners' previous experience give confidence that the Project will be able to progress in a timely manner. One Expert Assessor raised a concern that the Project is not expected to start until the preceding NIA Project has completed at the end of 2024. This will require a review of the detailed work scope once the outcomes of the NIA work become clear.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge by improving the network resilience and robustness through enhancement of network asset condition data using Beyond Visual Line of Sight (BVLOS) drone survey to improve maintenance efficiency, fault finding and decision making for better grid management. Better asset condition data could result in more effective network management, improved system availability and better, more cost effective, use of maintenance resources and planned interventions, which will lead to reduced costs for electricity consumers. The Project is driving progress in regulation regarding automated BVLOS drone flights in non-segregated airspace to monitor and collect data on network asset condition. It drives innovation by going beyond the standard industry practices in energy networks regarding remote piloted (unmanned) drones with the new control system to monitor and collect information on the network asset.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND
Ofgem disagrees with the Expert Assessors and has rejected funding for this Project because the Project does not meet Eligibility Criterion 3. This is because the networks are responsible for ensuring equipment safety and reliability; the Project simply offers an alternative method of achieving this and does not contribute to moving the GB energy system toward Net Zero. Ofgem also noted the Expert Assessors' concerns for Eligibility Criterion 7 and has determined that it had not been met because the discounted market rate for the work submitted by the Project is disproportionately high for the development of an automated drone control system and alternative data collection method.

Recommended Project specific conditions
N/A

8.1.10 10127702, Phased Switch System

Submitted Project description
The Phased Switch System allows for dynamic phase reconfiguration of a Low Voltage (LV) feeder cable to reduce phase imbalance. Reducing phase imbalance; • reduces the load in the most heavily loaded phase, decreasing the chance of incorrect fuse operations • improves the utilisation of the cable's capacity, deferring reinforcement • reduces loses on the LV feeder and associated CO2 emissions • reduces the likelihood of customer voltage issues preventing participation in flexibility services or other markets This Project further develops and tests an existing prototype to market readiness while providing a support tool for planning and optimisation of deployment.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have met the Innovation Challenge Criterion because the Project introduces an innovative method to optimise the Low Voltage (LV) network and boost the uptake of Low Carbon Technologies (LCT). Furthermore, the Project addresses the significant losses in the LV distribution network, which is where the majority of losses transpire. This approach not only mitigates these losses but consequently contributes to additional resilience across all tiers of the electricity network. Such

		improvements have the potential to become the standard business as usual practices for an extended period.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified the potential to deliver a net benefit to electricity consumers because, following the successful installation of these Phased Switch System (PSS) devices on LV feeders, there will be reductions in operating costs of the LV distribution network as the feeder and transformer losses will decrease. Successful deployment of PSS will lead to reduced disruption to consumers and avoid voltage imbalance. As fewer unintended fuse operations will result, this will give rise to reduced or deferred network reinforcement need.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it will result in a different way of working for the DNOs and the current methods for managing LV network will change. It aims to move a novel network technology from demonstration to a level ready for deployment and allows the development of new planning tools for future networks.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider that this Project would be likely to undermine the development of competitive markets because it is envisaged that other DNOs will be involved as the Project evolves via the Stakeholder

		Engagement Panel and the proposed software for identifying the deployment of the proposed product will be openly shared across networks, allowing for other competitors to use the data as suited by them. The Expert Assessors also noted that following successful trials in GB, the manufacturer intends to introduce the PSS device to other European markets as well.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because the PSS is a new device that needs to be further developed along with deployment tools and extensively tested at the system level before it is fully deployed. The PSS device is essentially a tool for reducing phase imbalances in LV feeders and this will ensure a reduction in (a) feeder and transformer losses, (b) the need for expensive network reinforcement (such as cable overlays or construction of secondary substations), (c) disruption of customer power supply and (d) improves demand side response.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered the Project Partners to be sufficient for the Project because it has a strong consortium, with circa 50% of the GB Networks, along with innovators, academic institution and industry Project Partners. The Project also recognises the need to engage customers where the devices are trialled to ensure there are no adverse impacts detected.

7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be likely to deliver value for money and be costed competitively because the Project demonstrated good understanding of their Project plan and budget allocation, the balance of cost between Project Partners is acceptable and the Project is based on considerable prior learning and experience of real world. The Project will also use existing energy system research facility, test and demonstrative environment at the Power Network Demonstration Centre, reducing the cost of the Project.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project submitted a robust methodology, and it has in the past successfully delivered a NIA Project. The fact that the NIA Project Partners are still involved in the Project gives additional confidence.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge by introducing an innovative method to improve the Low Voltage (LV) network and boost the uptake of Low Carbon Technologies (LCT). The Project

mitigates the significant losses in the LV distribution network and consequently contributes to additional resilience across all tiers of the electricity network by increasing capacity of existing cables and ability to accommodate more LCT. Following the installation of these PSS devices on LV feeders, there will be reductions in operating costs of the LV distribution network as the feeder and transformer losses will decrease. As fewer unintended fuse operations will result, this will give rise to reduced network reinforcement. The Expert Assessors also considered this Project to have clearly identified the potential to deliver a net benefit to electricity consumers because the successful deployment of the PSS will lead to reduced disruption to consumers and avoid voltage imbalance. Furthermore, the Project builds on previous Projects (Silversmith NIA Project, UKPN NIA Project, SMITN Project) in a coherent way and seeks to develop a fully commercial solution that networks can use.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agrees with the Expert Assessors and approves this Project for funding. The Project's innovation lies in the new device – Phased Switch System and the network planning tool. Ofgem agrees that the Project is aligned with the Innovation Challenge as the successful deployment of PSS is likely to mitigate the significant losses in the LV distribution network and consequently contribute to additional resilience across all tiers of the electricity network by increasing capacity of existing cables and the LV network's ability to accommodate more LCT. To address the concerns raised by Expert Assessors on how the planning tool can be effectively used by other networks, Ofgem has decided to include the special condition below.

Recommended Project specific conditions
As part of the annual reporting, the funding party must outline how the planning tool will be used by other networks. As part of the Project's commercial strategy updates, the Project must include reference to how the planning tool will be made available - commercially including how if any benefits will be reflected back to the end users.

8.1.11 10127933, CReDo+

Submitted Project description
CReDo+ will develop the Climate Resilience Demonstrator into the Climate Resilience Decision Optimiser digital twin and data sharing platform, enhancing resilience investment planning and reporting. The Project will scale the CReDo technology across the electricity and gas sectors to understand infrastructure interdependencies and cascading risk from extreme weather including flooding, extreme heat, and strong winds. Tools will be developed to encode tacit subject matter Expert knowledge into new asset risk models, with a risk modelling framework to cascade asset failures through individual networks, between networks, and across sectors including water and telecoms. This will build whole system climate resilience.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by improving the understanding of robustness in future energy system configurations and develop solutions to improve and strengthen it because it demonstrates novel approaches to resilience as well as facilitating efficient rollout of new infrastructure in response to the growing issue of climate resilience.

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to gas and electricity consumers because it has the potential to support network licensee users with resilience investment planning and adaptation decision-making in the face of climate change and risks from extreme weather. This results in more efficient planning contributing to more efficient reinforcement costs. The Expert Assessors did however note that questions remain about whether the approach and benefits scale to a national level which should be explored further during the project. This is an area that the Project will aim to address in is commercial plan.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is taking a new and holistic approach to the core processes of asset planning and operations in light of climate resilience.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because there is a clear plan to disseminate and share lessons from the Project enabling competitors to develop similar processes. The Expert Assessors did comment that it was important that the Project kept its source code open source.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because the concept of integrated modelling, cascading risks of climate

		impact across different asset types, different sectors and different data owners is inherently very complex. As a strategically significant issue has been identified, the management of the interfaces and data sharing between different entities raises risk around commercial and security constraints
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered the Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because it has participation from the relevant sectors (energy, water, telecoms) and from a wider range of energy network businesses, government agency, a university, and an innovation accelerator.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be delivering value for money and be costed competitively because the overall magnitude of the costs appears in proportion to the scale and ambition of the task being attempted and the potential impact and benefits. The Expert Assessors also noted that the cost breakdowns of Project Partners were clear and seem reasonable overall, although there was concern that it was unclear how much 'scale up' and extension to a national level is feasible beyond the minimum viable product.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because it has a clearly articulated Project plan with clear stage gates. Supporting tasks around stakeholder engagement are clearly mapped out and

		there is a well-developed risk register. The Expert Assessors did raise concerns around the resources that would be required for a national roll out of the solution. This is an area that the Project will aim to address in its commercial plan.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project effectively addresses the Innovation Challenge and is an ambitious, innovative and potentially transformative initiative. It was acknowledged that the Project has potential to benefit gas and electricity consumers by aiding network licensee users in resilience investment planning and adaptation decisions, leading to more efficient reinforcement costs. The Project was noted for its network innovation, holistic approach to asset planning, and operations in light of climate resilience. The Project was not seen as undermining competitive market development due to its plans for open-source dissemination. The Project's innovative and complex integrated modelling of climate impacts was acknowledged as risky. Sufficient stakeholder participation is noted but the Project would benefit from reassessing its target stakeholders for national scaling. The Project was considered value for money with a clear cost breakdown, though concerns were raised about the costs of scaling beyond the minimum viable product. Lastly, the Project's robust methodology and clear Project plan were noted, despite concerns about resources for a national rollout.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors that the Project has met the Eligibility Criteria and addresses the Innovation Challenge and that this Application is recommended for funding. Ofgem agree with the Expert Assessors that this Project is an ambitious, innovative and

potentially transformative initiative that has the potential to deliver cross sector benefits to customers beyond the networks focus of the Strategic Innovation Fund.

Recommended Project specific conditions
At the Kick Off meeting, the Project must outline how the design authority is structured, how it discharges its responsibility and how it reports upwards to the steering committee.

8.1.12 10127934, Connectrolyser

Submitted Project description
Connectrolyser will optimise the flexible operation of Hydrogen Production Facilities (HPFs) by responding to the needs of hydrogen users as well as needs of the electricity network. The solution allows DNOs to avoid traditional firm capacity connections, which could take longer and costlier to consumers and developers. Connectrolyser provides opportunities for HPFs to support security of supply and other flexibility offerings. Up to 8GW of electrolysers are predicted to connect to UK distribution networks by 2050. This Project could save up to £4.8bn in network reinforcement costs across GB by dynamically managing the system for whole system optimisation.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by improving understanding of trade-offs between increasing resilience, robustness and the cost implications and consumer trust & acceptability in the context of a net zero transition because the issue of flexible hydrogen connection to the electricity network is a comprehensive system

		problem which has been well articulated in the proposal. This requires an understanding of the implications of flexibility both in front of and behind the meter. However, the Expert Assessors did note that the Application could have been strengthened by including quantifiable evidence to further prove this justification.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Not Met	The Expert Assessors do not consider the Project to have met this Eligibility Criterion because there were concerns that the benefits described in the Cost Benefit Analysis case were dependent on being awarded a secondary phase of Beta funding, despite this not being a guaranteed outcome. The Expert Assessors felt that the Application could have been strengthened if the Project had clearly articulated the specific net benefits of the first phase in isolation with quantifiable metrics relating to the Most Viable Product of the digital twin.
3: Projects must involve network innovation.	Met	The Project is considered to involve network innovation as it seeks to mitigate the risks associated with the flexible connection of hydrogen production facilities, which are novel and have not yet been integrated into electricity networks. The rationale for employing a digital twin approach to de-risk the process prior to physical implementation was considered reasonable. The Expert Assessors agreed that the Project has the potential to facilitate the connection of hydrogen production facilities in locations where connection costs and timescales would otherwise be prohibitive. However, although the Expert

		Assessors agreed on the Project's potential, it was agreed that the Application could have been enhanced by greater sponsorship and engagement from other Distribution Network Operators (DNOs) and Gas Distribution Networks (GDNs). This involvement would further substantiate that this proposal is indeed network innovation, and it would highlight the strong strategic need for this across all networks and alternative connected systems.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because there are limited opportunities for competitive markets at the interface between demand-side energy services and electricity network control systems and there is no market-ready solution to the issues raised. The Expert Assessors did however raise concerns that the solution's Intellectual Property will sit predominantly with the hydrogen developer rather than the network, and without sufficient ambition to subject this software solution and data to open data triaging, this might provide the product provider with an unnecessarily large market advantage.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because the performance of the underlying technology in flexible duty cycles is in the early phase of development, so de-risking this technology by building a digital solution in the

		first instance offers a potential route to accelerate the hydrogen production facility market.
6: Projects must include participation from a range of stakeholders.	Met	Most of the Expert Assessors agreed that the Project encompasses the appropriate group of stakeholders to execute its initial phase. However, concerns were raised regarding the absence of an Original Equipment Manufacturer (OEM) for Hydrogen Production Facilities (HPFs). Given that utilising hydrogen production facilities in a flexible or curtailable manner significantly differs from continuous production, the concern was that without significant OEM involvement, the outcome may not be commercially viable. This is because the OEM may be reluctant to guarantee the performance of their technology under such operational conditions. Additionally, the Expert Assessors noted concerns about the lack of sponsorship from other Distribution Network Operators (DNOs), which may pose a risk to the Project's scalability and rollout.
7: Projects must provide value for money and be costed competitively.	Not Met	The Expert Assessors do not consider the Project to have met this Eligibility Criterion because they have significant concerns regarding the Project's approach to the risk to scalability and roll-out of the first phase of the Beta-stage proposals which refers to this specific Application. The Expert Assessors noted that the digital twin development costs are substantially higher than industry norms. The day rates for development partner, Hydrogenus, were also high. The subcontractor costs associated with the development of the

		solution are high despite the provider not being secured at the time of the Application. Additionally, the time allocated for the Lead Network Project Manager was considered excessive. The Expert Assessors also observed that some planned work for the first phase might offer no consumer benefit unless the second phase is funded, indicating unnecessary speculative spending. The Expert Assessors recommended that the Application could have been enhanced through the downsizing of the of the first phase proposal, to focus solely on essential tasks prior to Hydrogen Production Facility site selection and to reallocate tasks from the first phase to the second to minimise speculative spending in anticipation of a potential successful second phase proposal.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors agree that the Project methodology is, overall, well thought through and robust, featuring a clear Project plan, defined roles and responsibilities, and a well-developed risk register. However, it was noted that the proposal could have been strengthened by a more thorough preliminary examination of (i) various connection architectures, (ii) the impact of flexible duty cycles on the HPF system, and (iii) the technical capability of Hydrogen Production Facilities to provide additional system services. Such considerations would further reinforce the methodology and mitigate the primary investment risks associated with software development and testing.

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors have not recommended this for funding as it has not met all the Eligibility Criteria. Although the Project was considered to demonstrate innovation, novelty, and risk, and present a robust and well-thought-through methodology, the Expert Assessors raised concerns about the net benefit to electricity and gas consumers as well as the value for money presented in this Application. They acknowledged that the Project effectively addressed the Innovation Challenge by articulating the comprehensive system problem of flexible hydrogen connection to the electricity network and understanding the implications of flexibility both in front of and behind the meter. The methodology was praised for its clear Project plan, defined roles and responsibilities, and well-developed risk register. However, concerns were raised about the absence of an Original Equipment Manufacturer (OEM) for hydrogen production facilities, which could affect commercial viability and technology performance under flexible operational conditions, as well as the lack of sponsorship from other Distribution Network Operator (DNO) partners, which poses risks to scalability and rollout. The Expert Assessors also noted concerns with the approach to the first phase of the Beta-stage proposals referring to this specific Application, including excessive costs for digital twin development, high daily rates for the development partner Hydrogenus, and excessive time allocated for the Lead Network's Project manager. Additionally, there were concerns about speculative spending, with some planned work for the first phase potentially offering no consumer benefit without second phase funding. While the proposal was seen as meeting the Innovation Challenge, the Expert Assessors felt it could be strengthened with quantifiable evidence and noted a risk that it might lean more towards addressing hydrogen supply chain needs rather than focusing purely on network innovation. They recommended downsizing the proposal, concentrating on essential tasks prior to HPF site selection, and reallocating tasks to the second phase to minimise speculative spending.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors and have not approved funding. Ofgem agrees that the Project has not met Eligibility Criteria 2 and 7 because there was insufficient evidence to justify

the value for money in creating a digital twin environment ahead of a live demonstrator trial, and how this proposition alone could create a scalable solution for other DNOs and their networks. The lack of consideration for end users of hydrogen in the Project Application, and how this will inform the optimum usage and location of these hydrogen production facilities is also a concern.

Recommended Project specific conditions
N/A

9 SIF Beta Phase – [Accelerating decarbonisation of major energy demands] - Summary

This section covers the assessment of Round 2 Beta Phase Applications received into the 'Accelerating decarbonisation of major energy demands' Innovation Challenge.

For the Beta Phase, 8 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 22 May 2024 and are listed below.

Project reference number	Project name	Funding licensee	Total Project costs (£)	Total Project contribution (£)	Total SIF Funding requested (£)	Expert Assessors Recommended for funding (Yes/No)	Ofgem Decision for funding (Yes/No)
10117383	Flexible Railway Energy Hubs	SP Transmission PLC	£ 11,081,020	£ 2,824,404	£ 8,256,616	Yes	Yes
10120244	Planning Regional Infrastructure in a Digital Environment	National Grid Electricity Distribution PLC	£ 4,148,195	£ 414,795	£ 3,733,400	Yes	Yes
10120715	Inform	Northern Powergrid (Northeast) Limited	£ 2,220,656	£ 231,409	£ 1,989,247	Yes	No
10123810	Local Energy Oxfordshire -	Southern Electric	£ 10,393,939	£ 1,142,008	£ 9,251,931	Yes	No

	Neighbourhoods (LEO-N) Beta Phase	Power Distribution PLC					
10127928	Heat Risers	UKPN (Operations) Limited	£ 4,425,860	£ 442,586	£ 3,983,274	No	No
10127929	Park & Flex	UKPN (Operations) Limited	£ 5,255,649	£ 525,566	£ 4,730,083	No	No
10127930	Watt Heat	UKPN (Operations) Limited	£ 11,638,633	£ 1,752,194	£ 9,886,439	No	No
10127932	Heatropolis	UKPN (Operations) Limited	£ 11,798,614	£ 2,054,994	£ 9,743,620	Yes	Yes

10 Expert Assessors Recommendations [Accelerating decarbonisation of major energy demands]

10.1.1 10117383, Flexible Railway Energy Hubs

Submitted Project description
Flexible Railway Energy Hubs will demonstrate a transformative approach to accelerate the decarbonisation of the single largest electricity consumer, Network Rail. An Energy Hub is a modular microgrid solution that integrates batteries and local renewable energy with the rail traction network. By transforming the railway into a flexible electricity consumer, the Project generates benefits to the electricity network and consumers by reducing wind curtailment expenses via flexibility services and reducing engineering disturbances. The Project duration is 5 years and requests £8.3m SIF funding, partners contributing £2.8m in-kind, predicting £2.1b cumulative whole life benefits through national rollout.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by improving the understanding of trade-offs between increasing resilience, robustness and the cost implications and consumer trust and acceptability in the context of a net zero transition because it explores flexibility and demand side management for large electricity consumers via rail decarbonisation. The Expert Assessors also considered this Project to have addressed the Innovation Challenge because the successful development and deployment of digital and control technologies will be instrumental to delivering a roadmap to electrify and decarbonise transportation

		across the UK while helping achieve lower consumer costs.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers because the Project leverages energy storage to improve the resilience of a large electricity consumer (Network Rail), reduce grid investment cost, take advantage of renewable energy, and reduce curtailment. The Expert Assessors also noted that the Project will benefit electricity consumers through the development of a new model for flexibility and ancillary services.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is the first Application involving rail and microgrids. The Project is examining tertiary control of a rail-related local energy system which is innovative.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because of the commitment to open procurement and commitment to disseminate the results openly. Additionally, the Expert Assessors noted the Project's proactive engagement with markets and potential suppliers to understand the landscape of the market and viability of rolling out the Project at a larger scale.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative, novel and risky because it is one of the first of its kind in Europe to explore the technoeconomic viability and scalability of Battery

		Energy Storage System (BESS) for high-demand national infrastructure networks, such as Network Rail. It also explores operational business models for Network Rail in future for Energy Hub operation (e.g., make vs buy).
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered the Project Partners to include participation from a range of stakeholders including technical developers, utility customers, academic institutions, and network operators. Additionally, the Project consortium provided good explanation of the role of each Project Partner and key stakeholders. The Expert Assessors also noted that the stakeholder management is outlined clearly, and the consortium showed themselves to be credible and competent for the work.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be likely to deliver value for money and to be costed competitively because the Project's costs are balanced across the Project Partners and offer sufficient contributions as well the potential for benefits. The Expert Assessors also noted that the consortium justified the relatively high labour cost to provide resilience within the Project by having a buffer using upper estimates of staff requirements to account for this being a high growth sector and the scope for staff attrition.
8: Projects must be well thought through and have a robust methodology so that they are capable of	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because all key steps, milestones and work package

progressing in a timely manner.		leads were identified against achievable timelines for engineering and execution.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors agree that the Project is aligned with the Innovation Challenge because it tries to address rail decarbonisation, flexibility and demand side management of large electricity consumers. The Expert Assessors considered Flexible Railway Energy Hubs to be a well-structured Project. The Project has clearly identified potential to deliver a net benefit and improve the resilience of a large electricity consumer such as Network Rail. The Expert Assessors noted that the Project had a good approach to open procurement, commitment to disseminate the results openly and a proactive engagement with markets/ suppliers. The Expert Assessors considered the Project to be delivering value for money and be costed competitively.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors and approves this Project for funding. The Project's innovation lies in market innovation, tertiary control of a rail-related local energy system and different roles of large electricity consumer such as Network Rail in future as energy flexibility asset operator. The Project brings clear benefit as it leverages energy storage to improve the resilience of a large electricity consumer (Network Rail), reduce grid investment costs, take advantage of renewable energy and reduce curtailment. Ofgem also agrees with the Expert Assessors that there is an opportunity for this Project to be broadly discussed beyond energy network and potentially influence the regulatory landscape involving other critical national infrastructure and ownership and management of energy flexibility assets and services.

Recommended Project specific conditions

N/A

10.1.2 10120244, Planning Regional Infrastructure in a Digital Environment

Submitted Project description
Planning Regional Infrastructure in a Digital Environment (PRIDE) combines novel governance structures with a cutting-edge digital tool that lets local authorities, energy networks and regional stakeholders collaborate to deliver local and regional decarbonisation ambitions. The digital tool supports local authorities and networks to quickly and cost-effectively share detailed information to inform planning and investment activities. The governance structures then bring together local and regional stakeholders, informed by data in the digital tool, to work together to make more informed strategic decisions, accelerating net zero delivery.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by developing technical, organisational and commercial innovation including using novel multi-energy system configurations for increasing system resilience because it creates an innovative tool for networks to assist with local area planning alongside integrated governance structures for regional actors and institutions to strategically coordinate network developments.
2: Projects must have clearly identified potential	Met	The Expert Assessors considered this Project to have clearly identified a potential to deliver a net

to deliver a net benefit to gas or electricity consumers		benefit to gas and electricity consumers because the tool will help to identify correct network investment to enabling local areas to better define local decarbonisation solutions for local benefit.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it uses data in ways that have not been used before and it would enable more locally responsive, cost-effective distribution system operator (DSO) flexibility services as well as help to identify cost-saving alternatives to network reinforcement.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because it aims to enhance the range, local responsiveness, and accessibility of digital tools for regional-scale whole systems planning available to organisations across sectors which will support markets. The regional system planner and novel institutional governance will likely require input and potentially approval from Ofgem for beyond Beta rollout, including assurance that competitive markets will be protected or improved.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because it aims to provide a digital toll and suitable cross-sector governance structures to enable a universal/GB-wide shift to integrated local/regional whole system planning and optimised investment to accelerate

		decarbonisation to integrate data and scenarios across multiple sectors of planning, and investment.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because it includes the distribution network, system operator, local authorities, and innovators with capabilities in building digital tools. It was noted that the Project should continue to engage with other Projects and initiatives such as Powering Wales Renewably, the Virtual Energy System, and the Regional Energy System Plan framework that are being developed within the SIF portfolio or through other mechanisms.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be likely to deliver value for money and to be costed competitively because the Project has a mechanism to deliver significant benefits to energy system operators and through them to consumers via improved planning and coordination. The costs of Project Partners are assessed to be market competitive given the required skills and expertise.
8: Projects must be well thought through and have a robust methodology so that they are capable of	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project presented a good, clear and well-structured plan and Project management documentation, whilst having a

progressing in a timely manner.		robust systematic reporting structure already tested out in the Alpha Phase.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge by creating a novel tool that aids local area planning and integrates regional governance for network coordination. They recognised its potential to benefit gas and electricity consumers by improving investment decisions and supporting local decarbonisation solutions. The Project's innovative use of data for cost-effective distribution system operator services and identifying alternatives to network reinforcement was highlighted, with assurance that it does not undermine competitive markets but rather enhances digital tools for regional planning. The Project's ambition and integration across multiple sectors were seen as innovative yet risky, though it includes a diverse range of stakeholders and engages with related initiatives. The Project was also found to deliver value for money, with competitive costs and a robust methodology ensuring timely progress.

Decision from the Gas & Electricity Markets Authority
FUND
Ofgem agrees with the Expert Assessors and approves this Project for funding. Ofgem agrees that the Project's innovation lies in a novel tool to aid local area planning and integrating regional governance for network coordination. The use of data for cost-effective distribution system operator services and identifying alternatives to network reinforcement was highlighted, due to the enhancement of digital tools used for regional planning.

Recommended Project specific conditions
As part of the Quarterly Review meetings, the Project team must provide an explanation and assessment of the resource intensity and feasibility of manually gathered local data on current and planned individual local energy Projects. This includes determining who will be responsible for collecting this data and who will enter it into the digital tool, distinguishing this from building-level modelled data and zonal modelling. As part of the Quarterly Review meetings, the Project team must provide a clear plan for the optimal governance and ownership structure of the PRIDE digital tool post Beta Phase. This plan should be a key Project output, with progress updates presented at each quarterly review meeting.

10.1.3 10120715, Inform

Submitted Project description
The Inform Beta proposal is to develop a self-serve online connection tool for HV sites wishing to decarbonise their heating systems through electrification. It will include innovative optioneering functionality, considering how energy efficiency measures and peak load shifting (for example through on-site energy storage) can be used to reduce necessary network reinforcement to facilitate a connection. This will remove barriers to decarbonisation by suggesting ways to reduce connection costs and decrease connection times. The tool will cover the entirety of Northern Powergrid's licence areas, be free to use, and available for HV customers to access from Northern Powergrid's website.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge by developing technical, organisational and commercial innovation including using novel multi-energy system configurations for increasing system resilience because it addresses a core issue for

		energy networks relating to improving the connection process and it improves services for large users.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have identified a clear benefit for electricity consumers both through reducing the costs associated with the connections process and through significantly speeding up the process of high voltage users being able to gain indicative connections costs.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is examining the streamlining of the process for connections design and optioneering. The Expert Assessors did raise a concern that a risk may evolve where the tool makes recommendations which are later disputed and how such a dispute would be handled.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because there is no equivalent solution on the market currently and it does not disrupt any market arrangements. However, the Expert Assessors did note the need for the Project to complete an open data triage of both data and software.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and novel because there is not a readily available modelling tool which optimises the planning of a site coordinated with the planning of

		a network connection. However, there was some concerns over the level of innovation over business-as-usual activity.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because it showed good engagement from major end users. However, the Expert Assessors did note significant concerns over the user experience testing process and that an expanded list of user experience testers would be beneficial for the Project.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be likely to deliver value for money and to be costed competitively because costing is clear and appropriate. However, the Expert Assessors did note concerns over the post Beta business-model because it was unclear how the tool would be funded into the next price control.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it is capable of progressing in a timely manner because the Project methodology is well structured, has a good level of detail presented, and targets full production release through this Beta Phase.

Recommendation to the Gas & Electricity Markets Authority
FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Project is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge because it resolves a core issue for energy networks and their connections customers in improving the transparency, functionality, and pace of the connection process. The Expert Assessors did, however, have significant concerns around the approach to user acceptance testing process, the need for an open data triage of both data and software and the post Beta business-model. The Expert Assessors noted a risk that the tool makes recommendations which are later disputed by their customers, and how such a dispute would be handled against liabilities. The Expert Assessors considered the Project to have a robust methodology which gives confidence of progressing in a timely manner.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem has not approved funding for this Project. Whilst the Expert Assessors considered all Eligibility Criteria to have been met, Ofgem has noted their concerns on Eligibility Criteria 3, 5 and 7 in particular. Specifically, Ofgem considered that Eligibility Criteria 3, 5 and 7 have not been met as the Project focused on improvements to business-as-usual activity rather than bringing significant innovation to the connections process, and over uncertainty over the post Beta business-model and how it would be funded into the next price control. Ofgem could see the advantages the virtual network engineer would bring to both developers wanting to decarbonise their HV-connected sites and to the networks connections team in reduced time dealing with connections requests. However, in providing advice to customers through the tool on how to decarbonise their sites, Ofgem considered that the Project went beyond the role of a network and therefore went outside the networks focus of the SIF.

Recommended Project specific conditions

N/A

10.1.4 10123810, Local Energy Oxfordshire – Neighbourhoods (LEO-N) Beta Phase

Submitted Project description
Decarbonising the major energy demands of heat and transport at the grid-edge is critical to achieving net-zero. This presents a complex challenge to DNOs, Local authorities, communities and householders. Currently a "delivery gap" exists between strategic policy and tactical delivery which is slowing the transition to net zero. LEO-N addresses this gap through four interlinked innovations including the Grid Edge Coordinator role along with cross-organisational governance structures, digital tools and new services required to deliver a cost-effective, accelerated net-zero transition at the grid-edge. This will increase community engagement in the energy system, whilst allowing DNO/DSOs to access additional benefits.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it seeks to accelerate neighbourhood-scale decarbonisation through four innovations - digital mapping tools, a grid edge controller, integrated governance at a hyperlocal level and smart retrofit offers for homes. If successful, the Project will deliver tangible benefits supporting network transition to Net Zero.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to gas and electricity consumers because the Project will result in lower network integration and reinforcement costs than the counterfactual, quicker connections, and the ability, at

		community level, to contribute to network flexibility needs.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because although it builds on previous work (LEO, LEO-N Alpha), it links existing top-down planning tools with new neighbourhood bottom-up tools. The Project is complementary to other Projects that are ongoing, and LEO-N fills a gap that will not be filled by the Regional Energy Strategic Planners (RESP) but will feed into Local Area Energy Plans (LAEP) and provide inputs to RESP.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because it should significantly reduce the costs of delivering LAEPs, which the delivery of LAEPS would provide a boost to the competitiveness of this market. The tools and insights produced should be available across the industry and DNOs and other stakeholders will be free to select alternative suppliers.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative because it aims to link DNO/DSOs with Local Authorities and community groups to increase efficiency in network planning and operations. This will challenge the way in which DNOs operate today and provides a risk as new governance structures and models will be required and needs to be agreed with other

		DNOs/DSOs, as well as the engagement of new community led groups.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because Partners are a balanced representation of interests and capabilities, and wider outreach and engagement is clearly identified, linking a DNO with multiple levels of Local Authority, as well as with community groups and individual consumers.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to delivering value for money and to be costed competitively because for a four-year Project with the identified outputs, the costs appear to be very competitive, and the funding across partners and work packages have been set out clearly and are reasonable given the scale of the Project. However, the Expert Assessors raised concerns about some of the day rate costs and further commented that the transparency of value for money for the contractors is low.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered 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 a robust governance approach in place and the Gantt chart and work package structure demonstrate good planning. This gives confidence the Project will be delivered successfully.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Expert Assessors found the Project to effectively address the Innovation Challenge because it seeks to accelerate neighbourhood-scale decarbonisation through four innovations - digital mapping tools, a grid edge controller, integrated governance at a hyperlocal level and smart retrofit offers for homes. The Expert Assessors did however raise significant concerns over the replicability of the Project outside the Oxfordshire region and identified that significant ongoing costs are required to deliver the benefits. Project specific conditions have been recommended around dissemination and training outside Oxfordshire to ensure replicability and milestones to be introduced to ensure buy-in from other DNOs.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND
Ofgem disagrees with the Expert Assessors that the Project should be funded. Ofgem does not agree that the Project has met all the Eligibility Criteria. Specifically, Ofgem considered that Eligibility Criterion 2 had not been met because the Application has not demonstrated how the Project is widely replicable outside the Oxford region, given the large amount of investment required from the Project. Ofgem further considered that the Project has failed to meet Eligibility Criterion 7 due to the significant and ongoing upfront costs required before the benefits were realised as presented in the cost benefit analysis. Ofgem did see that the Project had potential to deliver benefits and commended the concept of the grid edge coordinator concept as well as the hyper local Local Area Energy Plans at primary substation level as a huge potential benefit to local energy. Ofgem felt that there may be more appropriate funding streams potentially through the DESNZ Local Energy Team or the Local Power Plan as part of newly formed British Energy to take the Project forward. Ofgem felt the Project could benefit from better definition on how replicability will be achieved, and upfront costs met.

Recommended Project specific conditions
N/A

10.1.5 10127928, Heat Risers

Submitted Project description
Multiple occupancy buildings (MOBs) make up a quarter of dwellings in UK Power Networks' areas. That's more than one million households in need of a sustainable, cost-effective pathway to a low carbon home. Heat Risers aims to overcome specific connection barriers hindering heat decarbonisation in these buildings. By developing and testing a Pre-Application Support tool, it seeks to assist building owners in selecting the most cost-effective and sustainable heat solution. Additionally, the Project explores alternative Building Network Operator (BNO) business models to alleviate financial burdens on MOBs facing higher connection costs.

Eligibility Criteria	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it aims to help the challenge of integrated planning for decarbonising heat to reduce costs and timescales for transition in this sector. The Expert Assessors noted that there was value in a decision support tool to help select the best approach to building decarbonisation would be useful for building owners and it could have some flow on benefit to the network.
2: Projects must have clearly identified potential to deliver a	Not Met	The Project was not considered by the Expert Assessors to have met this Eligibility Criterion because it has not clearly identified a potential to deliver a net benefit to electricity

net benefit to gas or electricity consumers		consumers. While there could be value in a decision support tool to help select the best approach to building decarbonisation, it would need input from a wider range of stakeholders to be fit for purpose. The Expert Assessors considered that the tool being proposed by the Project team could only make relatively small improvements to the connections process and would therefore be unlikely to deliver on the benefits detailed in the Application. The network benefits to be derived were therefore considered insufficient for the Eligibility Criterion to be met.
3: Projects must involve network innovation.	Not met	The Project was not considered by the Expert Assessors to involve network innovation. The tool proposed, while having the potential to provide some benefit to the Networks if delivered and built effectively, would see the primary benefits in respect of choice of decarbonisation strategy for the building(s) be realised more by building owners than the Network. The Expert Assessors considered that the solution for this type of tool would need to be better suited around policy and financing for solutions for buildings, and that the Networks are not the most appropriate bodies to take this forward.
4: Projects must not undermine the development of competitive markets.	Not Met	The Expert Assessors were not satisfied that the Project would not undermine the development of competitive markets. The Expert Assessors, while in agreement that a neutral facilitator to advise building owners on decarbonisation solutions would be useful, considered that a tool which delivered insufficient or incomplete advice on decarbonisation solutions could undermine the development of competitive markets.

5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative and risky because it is attempting to find ways to support Multiple Occupancy Buildings (MOBs) being transitioned to utilising low carbon energy sources for heating. The innovation is looking at this specific group, developing an evidenced decision support tool and encouraging policy change to reduce the barriers to this sector transitioning at pace and this is not a tool which currently exists. There is clear risk attached to developing this type of tool, due to the large margin for error and challenges associated with obtaining information about buildings and many variables which go into a building decarbonisation decision.
6: Projects must include participation from a range of stakeholders.	Not Met	The Expert Assessors did not consider the Project Partners to be sufficient for the Project because it is not clear that the Project Partners have engaged sufficient expertise in building operators or owners. Additionally, the Expert Assessors commented that technology providers were omitted from the stakeholder engagement and there was a lack of clarity about the level of engagement from the tenancy agencies and councils mentioned in the Application. The Expert Assessors concluded that the Project, being ambitious in scope, would need greater stakeholder engagement to meet the aspirations intended.
7: Projects must provide value for money and be costed competitively.	Not Met	The Expert Assessors considered the Project would not deliver value for money and be costed competitively, due to the risk that the tool would not be able to provide the benefits outlined in the Application and therefore prove a return on investment for the consumer. Additionally, the Expert Assessors considered there was insufficient explanation of how the tool would be maintained and how

		ongoing costs associated with use and maintenance of the tool would be managed.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered 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 it has been broken down into an appropriate set of work packages, with reasonable granularity on the tasks within each work package.

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
This Project did not meet all the Eligibility Criteria and the Expert Assessors did not recommend the Project for funding. The Expert Assessors considered the tool to be an innovative idea and commented that the problem of MOB decarbonisation and the understanding of connection costs to be generally worth solving but raised concerns that a Project of this nature should not be led by a Network. The Expert Assessors noted that if such a decision support tool were to help select the best approach to building decarbonisation was to be valuable, it would need to be more extensive than what was proposed by the Application, with ongoing maintenance and stakeholder input built into the solution. The Project, while being innovative novel and risky and having the potential to benefit consumers, did not demonstrate a sufficiently clear benefit.

Decision from the Gas & Electricity Markets Authority
Do Not FUND
The Expert Assessors' have made the assessment that the Project does not meet Eligibility Criteria 2, 4, 5 and 7. Ofgem agrees on the basis that while decarbonisation of MOBs poses a significant challenge and is a problem worth solving, the Networks are not the best placed entity to administer the type of tool proposed by the Application and that the risks surrounding delivery and execution outweighed the potential network benefits.

Recommended Project specific conditions
N/A

10.1.6 10127929, Park & Flex

Submitted Project description
Up to 4.3GW of flexible capacity is expected to be available in carparks across UKPN's area by 2050. Park & Flex aims to unlock flexibility from bi-directional charging of EVs in carparks, an untapped resource, to reduce system costs and enable faster connection of low carbon technology. This first-of-a-kind trial will implement real-world vehicle-2-everything (V2X) propositions and incentives with carpark operators to demonstrate the level of customer engagement that can be achieved; seek to onboard a long and mid-stay carparks to demonstrate wider applicability; and show the way forward to help catalyse a changing relationship between drivers and their vehicles.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it contributes to the provision of flexibility services in a novel way and utilises aggregation of vehicle to grid services to aid in accelerating decarbonisation of major energy demands. However, the Expert Assessors noted that, whilst the Project has addressed the Innovation Challenge, it had only done so marginally.
2: Projects must have clearly identified potential to deliver a net benefit to	Met	The Expert Assessors considered this Project to have identified a clear net benefit for electricity consumers in two ways. The first is the additional

gas or electricity consumers		revenue generated by consumers who have parked their cars at the airport. The second is the marginal network benefit offered by limited flexibility provision. There is potential for this approach to offer benefit at scale as potentially gigawatts of batteries could be parked in airport carparks, but even if that were to happen, it would take a long time for that scale to be realised. Additionally, most V2X flexibility will be provided via cars parked at home where they will spend most time parked. The amount of time a car spends in an airport carpark over its lifetime comparatively is much smaller. If the Project was looking at the benefits from aggregating the flexibility V2X-compatible cars parked at home could offer the network, the potential consumer benefit would be much larger.
3: Projects must involve network innovation.	Not Met	The case for market innovation came across much more strongly than network innovation and can be seen as a sign of the Project's successes during its Discovery and Alpha stages. The Project is aimed at improving market participation for V2X and assessing market barriers. The Project is more orientated to market innovation for V2X than network innovation. Whilst there is value in the Project conception there is not a strong network element. The Expert Assessors considered this Project to enhance local system (i.e., airport) flexibility rather than network flexibility. Any DSO benefits received

		from an airport will be transitory as cars aren't parked there for much of their lives. Additionally, much airport power activity happens behind the meter. This means the amount of flexibility delivered into the wider network will always be limited, regardless of the size of an airport's connection to the grid and the interaction the grid has with the airport power system.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because its route to commercialisation is via enablement of car park operators and other parties to participate in competitive markets for flexibility and other services. The Project's findings will be openly disseminated to ensure that all parties can participate equally in these markets.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project to be innovative, novel and risky by being a first of its kind in delivering V2X services from car parks at scale. They noted that the Project is commercially risky rather than technically risky. This is due to the uncertainty V2X technology changes create, meaning investment in V2X technology is commercially risky. Additional commercial risks arise from the business model which is in the process of being proven. By the time it has been developed and is attractive, the charging infrastructure technology used to prove it will be outdated. This makes it risky for

		any airport operator looking to invest in the Project. The Expert Assessors concluded that the risks identified were risks to carpark operators and airports, with limited network risk.
6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders. The Project has included participation from a distribution network (UKPN), a party which understands facilities of large sites with large carparks (UKPN Services), a V2X charging specialist (Fermata) and an analyst of energy and flex markets (Baringa). However, it was noted that key stakeholders were missing as partners. The Project failed to secure an airport partner ahead of the Beta Application submission. The Project would be stronger with involvement of a carpark operator, a user research specialist, and a flex market aggregator/optimiser.
7: Projects must provide value for money and be costed competitively.	Not Met	The Expert Assessors did not consider the Project to be likely to deliver value for money and to be costed competitively. The funding requested is expensive given so few charging points are being installed. In particular, the Expert Assessors were unclear as to why UKPN Services was requesting so much, when the Expert Assessors estimated the 8 charging points being installed would total £96,000. The Expert

		Assessors were consequently unable to conclude the Project is value for money due to opacity around UKPN Services costs. Additionally, the Expert Assessor suggested that this Project does not build on significant investment in previous Projects which have proven the concept that V2X provides network value.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner. The Project plan was clear and well presented. The Expert Assessors only concern was the amount of money being requested ahead of the Stage Gate, exposing consumers to greater risk due to the upfront investment of consumer funds.

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
The Expert Assessors agree that the Project has not met all the Eligibility Criteria, and that this Application is not recommended for funding. Whilst there is a huge value in scaling V2X services across the UK, the business model being proven is for commercial operators. The limited amount of the value that is returned to consumers via lower connection costs and lower bills through greater network flexibility gave the Expert Assessors cause for concern. The Expert Assessors did not see how the Project was generating network innovation above that of previous Projects and commented that the Project is taking place too early in the roll out of electric vehicles. This means that in its current form, the Project may not be scalable for many

years. This creates risk due to the rapid evolution of technology compared to the time taken for the business model to be proven and become attractive. The Assessors considered that this may have contributed to the Project's inability to secure an airport carpark operator.

Additionally, the Project's focus on airport car parking means only a marginal amount of the potential flexibility V2X could provide the network is being assessed as part of the business model. The Project would potentially provide much greater benefits if the value of V2X cars parked at home was being included.

The Expert Assessors strongly recommended the Project team re-apply for funding taking on board the feedback above. Alternatively, they suggested that the Project remain in its current form and seek funding outside of SIF.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND
Ofgem agrees with the Expert Assessors that the project does not meet all the Eligibility Criteria. The Expert Assessors determined that the Project did not meet Eligibility Criterion 3 (Projects must involve network innovation) and Eligibility Criterion 7 (Projects must provide value for money and be costed competitively). Ofgem agrees on the basis that the Project innovation is more focused on system innovation than network innovation. Additionally, the Project was not seen to be costed competitively as the amount of funding requested by UKPN Services was too high considering that only 8 charge points were to be installed.

Recommended Project specific conditions
N/A

10.1.7 10127930, Watt Heat

Submitted Project description

Watt Heat will demonstrate the value of thermal storage when coupled to electrified heating systems to unlock heating flexibility within consumers' homes. It will develop business models and aggregation platforms to support commercial propositions to ensure value is shared to customers as asset-owners, and support network efficiency and constraint management to drive a low-cost Net Zero transition.

The trial will test a range of heating technologies to understand flexibility potential, generate a rich dataset of load profiles for different technologies, tariffs, and dwelling types to support policy makers, networks and the wider energy industry accelerate the uptake of low-carbon heating.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it has the potential to demonstrate the benefits of coordinating flexible heat assets to reduce network costs and increase consumer access to DSO and ESO markets. The proposed solution aims to address peak demand issues traditionally associated with electrified heat. This is aligned with the aims of the Innovation Challenge.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers because it is looking at ways that consumers can store energy and have it utilised on the grid at peak time by aggregators and suppliers, contributing to savings both direct and indirect cost savings. The Projected savings for customers on a Time of Use (ToU) Tariff and customers with a zero emissions Boiler are potentially achievable, however the

		Expert Assessors commented that the benefits case was weakened by the long payback period for the Project, and a higher cost project overall with lower confidence in the benefits being realised.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is trialling the development of new products to enable consumers to store thermal energy on behalf of the network operators. It is examining the ability of domestic heat technologies to participate in ESO and DSO value streams. This involves the examination of how market signals can be utilised to generate predictable and practical responses from thermal demand to mitigate the impact of electrified heat on peak demand.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets because it is seeking to source the data insights that will unlock the barriers to the inclusion of low carbon heat technologies in DSO and ESO value streams. This is not considered to undermine the development of competitive markets because this Project will seek to address current market barriers of inclusion of heat technologies in DSO and ESO value streams while promoting the adoption of standards and licensing for DSR providers.

5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered the Project innovative and novel because it seeking to deploy new techniques to unlock the flexibility of electrified heat through the mass integration of thermal storage products. The Expert Assessors noted that these technologies are yet to be recognised in traditional DSO and ESO flexibility markets due to a lack of baseline data relating to response and performance.
6: Projects must include participation from a range of stakeholders.	Not Met	The Expert Assessors did not consider this Project to include participation from a sufficient range of stakeholders. The Expert Assessors found that while there was demonstration that there was an appropriate set of skills in the Project team to deliver the Project, the Project was unable to demonstrate how the ESO would be effectively brought in. Additionally, the Expert Assessors considered that there could have been further articulation of the plans for consumer involvement and how trial participation and engagement would be managed, in terms of the roles and responsibilities of the stakeholders engaged in these areas that would be looking to face consumers and shape the trial.
7: Projects must provide value for money and be costed competitively.	Not Met	The Expert Assessors did not consider the Project to be likely to deliver value for money or to be costed competitively because there was insufficient justification of the costs of the work packages being delivered by Baringa. Additionally, the Expert Assessors considered that there could have been further justification for the funding

		request to go towards the aggregation platform, as it was unclear why this platform required such high development costs. The value for money case could have been further strengthened by the Project team making clearer the route to market and commercialisation journey. Finally, the Expert Assessors considered that given the funding of non-network assets for this Project to be on the higher end for assets such as the Tepeo zero emission boiler.
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met	The Expert Assessors considered 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 it has a clear methodology with clearly assigned Project roles. The Expert Assessors were satisfied that the milestones and deliverables were achievable and sensibly timed, though queried why stage gates at key decision points had not been added to de-risk the Project.

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
Overall, the Expert Assessors did not recommend the Project for funding as not all the Eligibility Criteria were not met. While the Expert Assessors considered that the Project was aligned with the Innovation Challenge, and was innovative, novel and risky, there was insufficient justification provided for the costs of the Project, particularly in relation to the work packages delivered by some Project Partners. The Expert Assessors therefore did not consider that the Project was value for money or costed competitively. Additionally, the Expert Assessors noted that the Application would have benefitted from formal endorsement and buy in from by ESO, and they considered them a key stakeholder who was not sufficiently engaged in the Project. Explanation

of how the products developed would fit into their existing suite of ESO/DSO products would have greatly benefitted the Application. This would help to mitigate against duplication of efforts and ensure alignment.

Decision from the Gas & Electricity Markets Authority
DO NOT FUND
Ofgem has agreed with the Expert Assessors that this Project should not be funded. The Expert Assessors viewed the Project to not meet Eligibility Criteria 6 ('Projects must include participation from a range of stakeholders.') and 7 ('Projects must provide value for money and be costed competitively'). Ofgem agrees on the basis that the costs associated with work packages need further justification and that the Application would benefit from formal endorsement by ESO to guard against duplication of efforts and ensure alignment.

Recommended Project specific conditions
N/A

10.1.8 10127932, Heatropolis

Submitted Project description
The operation of low carbon heat networks is poised to transform how we heat homes and buildings as we embrace less reliance on fossil-fuels for heating. Today there is a disconnect between DNO planning and heat network design. Left unmanaged, this affects the planning and operation of both the heat and electricity networks and is ultimately costly for consumers. Addressing this challenge, Heatropolis is trialling a groundbreaking technical and commercial framework: unlocking better outcomes between heat and electricity networks. Intelligent heat network design and operation will accelerate decarbonisation delivering significant flexibility and load reduction to drive DNO reinforcement cost savings.

Eligibility Criterion	Met / Not Met	Additional Justification
1: Projects must address the Innovation Challenge set by Ofgem.	Met	The Expert Assessors considered this Project to have addressed the Innovation Challenge because it is directed to accelerating decarbonisation of heat, while reducing the costs of connecting and operating electrical heat loads. The Project proposes to do this through development of potential solutions for integrating DNO business planning with Heat Network design, build and operation. Heat networks are known to be heavy demand loads and there is international evidence to suggest that heat networks can play a substantial role in local/regional grid balancing but this has not been proven in the GB.
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met	The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers because if it succeeds in integrating heat network planning and operations into DNO business planning and investment, this should result in deferred, reduced or avoided costs which should flow down to the consumer. The Expert Assessors were satisfied that there was identified network level cost savings from avoided grid reinforcement costs and investment into thermal generating capacity (which is increasingly electric, e.g., large-scale heat pumps). The Expert Assessors considered that the Project could help to align investment with network planning as presently heat networks are planned independently of distribution network investment.

		In addition, the potential reduction of network losses from smoothing peaks in demand, and reduction of waste heat from heat networks, the Project will also bring forward testing of prospective whole system value from further thermal storage to improve heat network flexibility, which will result in cost reductions for consumers.
3: Projects must involve network innovation.	Met	The Expert Assessors considered this Project to involve network innovation because it is looking to integrate low carbon Heat Network operation and cost-benefit analysis with electricity DNO business planning and network investment, and development of DSO flexibility services and contracting. The Expert Assessors agreed that the commercial arrangements for flex from heat networks is a new area and central to the future of networks, and that the Project could provide evidence needed by the industry to support greater integration of services between two types of networks (heat and electricity) which would add value to the market and unlock investment.
4: Projects must not undermine the development of competitive markets.	Met	The Expert Assessors did not consider this Project to be likely to undermine the development of competitive markets, because it is likely to enhance markets for heat network design, development, operation, digital controls and efficiencies at both building and network scales. It was noted that there was a route to dissemination, with Guidehouse's role being to enable other Heat Network Operators and smart control providers to participate in future. Overall, the Expert Assessors

		considered that competitive markets should therefore gain from opening further commercial opportunities to improve whole system efficiencies.
5: Projects must be innovative, novel and/or risky.	Met	The Expert Assessors considered this Project to be innovative, novel and risky, because it focuses on developing and embedding flexibility services from electricity-led heat networks into whole system cost-benefit analysis and avoiding the risks that electrification of heat results in higher than necessary power network reinforcement costs. The Project is innovative in terms of the evidence it seeks to collect to support new flexibility market models. Testing the potential value for DNOs and HNOs from such investments entails risk, because this is an undeveloped sphere of HNOs in GB, requiring new commercial and technical instruments, at least some of which may fail. The Expert Assessors agreed that risk is formed from a gap in current network operations and investment planning, which focus on gas or electricity networks, but do not yet capture the potential for whole system efficiencies, and faster decarbonisation, from integration of a third network for heating in buildings. The Expert Assessors agreed that there are little or no direct incentives in current market arrangements for HNOs to invest in assets required to maximise flexibility in operations and the Project looks to innovate to address this gap in the market.

6: Projects must include participation from a range of stakeholders.	Met	The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders to be met because the Project team, being relatively small, includes key actors necessary to demonstrate whether Heat Network Operators will be able to support network operators through unlocking grid balancing services and local flexibility. The Expert Assessors suggested that the wider stakeholder engagement could have been stronger within the Application and agreed that wider dissemination would be necessary to ensure the Project makes as much impact as possible. The Expert Assessors suggested the Project would therefore benefit from involvement with key government and regulation and consumer protection groups (e.g., Heat Trust) and social housing providers or local authorities with significant social housing assets as these fit the third heat network typology.
7: Projects must provide value for money and be costed competitively.	Met	The Expert Assessors considered the Project to be likely to deliver value for money and to have been costed competitively because the Project addresses an under-investigated area of value for customers, environment and business from energy demand reduction. The Expert Assessors were comfortable with the costings and day rates provided and commented that the contributions were above the required 10% minimum.
8: Projects must be well thought through and have a robust	Met	The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely

methodology so that they are capable of progressing in a timely manner.		manner because the management structure, tasks, methods and timeline were well articulated in the Application. The Expert Assessors commented on the stage gates proposed by the Project which are inserted at strategic points to help de-risk the Project. The stage gates at year one and two trials provides a breakpoint in the evidence gathering process and ensures that the Project is curtailed if it will not provide a successful outcome or if sufficient evidence has been gathered to guarantee a successful outcome.

Recommendation to the Gas & Electricity Markets Authority
FUND
The Expert Assessors recommended the Project for funding and all Eligibility Criteria have been met. The Expert Assessors considered the Project to meet the Innovation Challenge because of the focus on heat networks and the integration with DNO business planning with heat network design, build and operation. Consequently, it has potential to secure whole system benefits and cost savings. The Project is viewed as an important demonstration in how to generate data to help unlock investment in heat network technology, in addition to being an opportunity for reduced electricity network reinforcements and heat network efficiencies, with strong prospects for mutual and whole system efficiency improvements. The Expert Assessors considered there to be a strong benefits case, with financial, environmental and market impacts and co-benefits seen as assessed systematically, with reasonable sensitivity analysis included. The Project was considered to have robust Project management, with stage gates positioned at critical points to de-risk the Project.

Decision from the Gas & Electricity Markets Authority
FUND

The Expert Assessors recommended the Project for funding and Ofgem agrees with the recommendation. Ofgem finds the Project to be well aligned with the Innovation Challenge of decarbonising major energy system demands and sits within the scope of effectively facilitating managing and integrating multiple demands and demand-side solutions because the Project is focussed on flexible integration of heat networks which poses an opportunity for decarbonisation.

Recommended Project specific conditions

As part of stage gate 1 (as set out in the Project Plan), the Project must provide a stakeholder engagement plan detailing how it will engage with and enable other Heat Network Operators and smart control providers to participate, as well as how it will engage with and disseminate information to key government bodies, regulators and consumer protection groups (e.g. Heat Trust), and social housing providers or local authorities with significant social housing throughout the Project.