

Strategic Innovation Fund (SIF)
Round 3 Innovation Challenges – Alpha Phase
Funding Decision and Summary of Recommendations
from Expert Assessors



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Introduction

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

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

For each round of the SIF, new Innovation Challenges are launched which focus on strategic issues currently facing gas and electricity networks. Round 3¹ of the SIF was launched in May 2023 and focuses on four Innovation Challenges:

1. Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout.
2. Novel technical, process and market approaches to deliver an equitable and secure Net Zero power system.
3. Unlocking energy system flexibility to accelerate electrification of heat.
4. Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation.

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

As set out in the SIF Governance Document², Round 3 of the SIF is open to the Electricity System Operator, Electricity Transmission, Electricity Distribution, Gas Transmission and Gas Distribution licensees.

This report is for the Round 3 Alpha Phase Project applications. It sets out the Funding Decision from Ofgem alongside the recommendations from independent Expert Assessors. Each Project application was scored in accordance with eight Eligibility Criteria in accordance with the Round 3 Innovation Challenges and the SIF Governance Document.

² The SIF Governance Document can be found here: <https://www.ofgem.gov.uk/publications/updated-sif-governance-document>

1 Round 3 Summary

Four Innovation Challenges were launched in May 2023 for Round 3 of the SIF³. For Round 3, the Innovation Challenges focus on specified areas that are key to achieving key sectoral targets to deliver a Net Zero power system. The Round 3 Innovation Challenges are:

- Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout.
- Novel technical, process and market approaches to deliver an equitable and secure Net Zero power system.
- Unlocking energy system flexibility to accelerate electrification of heat.
- Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation.

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.
- Scope: the scope of Innovation Challenge complements and does not duplicate other UK innovation programmes (including other network innovation funding mechanisms).

³ Find the four Innovation Challenges launched for round 3 here: <https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-three-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 Document⁴.

For the Alpha Phase of Round 3, Projects must start no earlier than 7 October 2024, end by 30 April 2025, and must only last 6 months in total and must not request funding of more than £500,000, exclusive of VAT.

Applications submitted to the Round 3 Alpha Phase by the 19 June 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 regulatory, commercial, financial and technical. Consistent with the requirements of the SIF Governance Document⁵, the Expert Assessors have assessed each Application with reference to (a) its compatibility with the Eligibility Criteria in chapter 2, and (b) taking into consideration any additional and relevant information available to the Expert Assessors.

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

The overall funding recommendation summarised in this report is based upon a balance of considerations to take into account whether a Project has met each of the SIF Eligibility Criteria, the 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

⁴ The SIF Governance Document is available here: <https://www.ofgem.gov.uk/publications/updated-sif-governance-document>

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 3 Alpha 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 3 Alpha 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.
- Expert Assessor evaluation – Each Expert Assessor assesses and scores questions 3-8, and 10 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 Alpha 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 Alpha 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.
- 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 3 Alpha 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)
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3 SIF Alpha Phase – [Whole system planning for faster asset roll-out]- Summary

This section covers the assessment of Round 3 Alpha Phase Applications received into the ‘Whole system planning for faster asset roll-out’ Innovation Challenge.

For the Alpha Phase, 21 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 19 June 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 Recommended for funding (Yes/No)
10129420	Probabilistic Pathways for Energy System Planning	NATIONAL GRID ELECTRICITY SYSTEM OPERATOR LIMITED	555,276	55,528	499,748	Yes	No
10124551	Maxflex	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	506,496	50,648	455,848	No	No
Alpha R3: Sea Change	Sea Change	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	494,655	49,466	445,189	Yes	Yes



10127982	SANND (Scenario Analysis for Non-Domestic Network Decarbonisation)	NORTHERN POWERGRID (NORTHEAST) LIMITED	445,712	45,786	399,926	No	No
10128804	Nature4Networks	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	554,648	55,500	499,148	Yes	Yes
10129379	Real Time System Model	SCOTTISH HYDRO ELECTRIC TRANSMISSION PLC	427,912	50,460	377,452	No	No
10130442	REVISE	SCOTTISH HYDRO ELECTRIC TRANSMISSION PLC	433,149	43,424	389,725	Yes	Yes
10130736	UN:LOCK - Unblocking Networks: Local Optimisation, Consumers and Knowledge	SOUTHERN ELECTRIC POWER DISTRIBUTION PLC	457,469	45,747	411,722	No	No

10130964	Cross Vector Hub	NORTHERN POWERGRID (NORTHEAST) LIMITED	425,544	45,438	380,106	Yes	Yes
10125526	Rural Energy and Community Heat (REACH)	NATIONAL GRID ELECTRICITY DISTRIBUTION (SOUTH WEST) PLC	626,732	136,715	490,017	Yes	Yes
10126497	Carbon and Hydrogen Transportation to SAF Production Facilities	National Gas Transmission PLC	479,249	48,350	430,899	No	No
10131749	Electric Thames	UK POWER NETWORKS (OPERATIONS) LIMITED	556,338	56,695	499,643	Yes	Yes
10126499	HyNTS Maritime	National Gas Transmission PLC	480,934	44,255	436,679	Yes	No
10128461	Road to Power	NATIONAL GRID ELECTRICITY DISTRIBUTION PLC	486,051	48,647	437,404	Yes	Yes

10131011	Look NorthH2	National Grid Electricity Transmission PLC	473,254	48,139	425,115	Yes	Yes
10131209	HIRE - Hybrid Network Improvement and Reliability Enhancement	National Grid Electricity Transmission PLC	435,652	60,827	374,825	Yes	No
10132124	DataMate	UK POWER NETWORKS (OPERATIONS) LIMITED	551,921	55,192	496,729	No	No
10132182	CLIP: Community Led Integrated Planning	UK POWER NETWORKS (OPERATIONS) LIMITED	521,878	61,209	460,669	No	No
10132187	HeatNet	UK POWER NETWORKS (OPERATIONS) LIMITED	519,211	52,154	467,057	Yes	Yes
10132411	Wayl-Ease	UK POWER NETWORKS (OPERATIONS) LIMITED	540,324	54,825	485,499	Yes	Yes
10132743	KnowMyFlex	UK POWER NETWORKS (OPERATIONS) LIMITED	611,248	112,325	498,923	Yes	No

4 Expert Assessors Recommendations [Whole system planning for faster asset roll-out]

4.1.1 10129420, Probabilistic Pathways for Energy System Planning

Submitted Project description

New NESO responsibilities will encompass whole energy system planning, which is essential to achieving Net-Zero at lowest cost to consumers. Planning for an inherently uncertain future is complex and time consuming and would significantly benefit from the ability to quantify risk within planning decisions, and analysis of more pathways.

This Project will demonstrate an enhanced end-to-end network planning methodology for the whole energy system, applying advanced computational techniques, such as reinforcement learning and probabilistic modelling, to capture risk and uncertainty within future energy pathways. This enables rapid iterative network needs analysis, risk-based options assessments, and optimised decisions for network planning.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met

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

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria and recommends this Project for funding. The Project addresses the Innovation Challenge as it would extend current planning methods toward probabilistic methods to improve network planning, which has a clearly identified potential to deliver benefits to consumers through lower network operation costs. The Project involves network innovation as it uses innovative techniques to improve network planning and modelling, these techniques are also viewed as risky as they have not been undertaken before due to their advanced nature. The Expert Assessors determined that it was a strong, technically innovative Project in an area that could add significant value for money if successful. Whilst the Project overall was felt to be well thought through, the Expert Assessors did raise concerns over the generic sprint plan that was presented within the Application, including detail on use case categories. Additionally, whilst the Project includes participation from a range of stakeholders, the Expert Assessors were keen to see the Project engage fully with other similar and complementary Projects, programmes, and functions both within NESO and more broadly. The Project does not undermine the development of competitive markets.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem disagrees with the Expert Assessors' recommendations and does not approve this Project for funding. Ofgem considers that Eligibility Criteria 5 and 6 have not been met. Ofgem considers that the Project does not provide novelty or risk as the reinforcement learning, and probabilistic modelling proposed by the Project already sits naturally within the scope of business as usual (BAU) activity led by the NESO as it enhances its whole system planning and operational model processes.

Additionally, Ofgem considers there is a lack of detail and information regarding the training of the artificial intelligence (AI) reinforcement model and the integration with the input data that will link the data back to reality.

In reviewing the comments from the Expert Assessors, Ofgem has also determined that the Project does not include participation from a suitable range of stakeholders. The Project would benefit from engagement and representation with complementary Projects, programmes and functions both within the NESO, such as the Future Energy Scenarios (FES) modelling team or the Regional Energy Strategic Plan (RESP).

Recommended Project specific conditions

N/A

[4.1.2 10124551, Maxflex](#)

Submitted Project description

Energy flexibility is essential to a Net Zero energy system. For customers adopting low carbon technologies, smart management of flexible assets will empower them to use less energy, reduce bills, and make the most of low carbon energy. MaxFlex will create Energy Flexibility Certificates (EFC), similar to Energy Performance Certificates, to provide a centralised view of the existing and future flexibility potential of industrial and commercial properties. This will help customers engage with flexibility to reduce their bills; support market participants to develop propositions;

and enable system operators to better forecast, plan, and operate the energy system, reducing costs for all.

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

Overall, the Expert Assessors did not recommend this Project for funding. Although the Expert Assessors agreed that flexibility visibility is an issue worth investigating and therefore addressed the aims of the Innovation Challenge as well as being innovative. However, Expert Assessors agreed that there were a number of delivery challenges associated with the Project such as, the lack of information around how the outputs would be made available to other Project Partners and stakeholders and how data protection elements could hurt the ability to share the data could stifle the growth of the market. The Expert Assessors did not consider the Project to provide a benefit to electricity or gas consumers, this is because the mechanism for delivery of those benefits is not sufficiently clear and there is a lack of certainty as to how the benefits will materialise and flow down to consumers. The Expert Assessors found there were potential conflicts with other market driven flexibility activities and identified a risk of closed off design resulting in measures which were not fit for purpose, which could hurt the market.

The Application was considered to have participation from a range of stakeholders because it includes a network distributor, a university, a specialist energy consultancy, and a local authority. There was some confidence in the Project methodology. However, the Expert Assessors considered that the Project was not value for money or costed competitively, due to the fees associated with the consultancy. The Expert Assessors were not convinced that adding the additional layer of flexibility certificates to be developed by the DNO and its Project Partners would add sufficient benefit to the system to be considered good value for money.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet the Eligibility Criteria 2, 4 and 7. Ofgem considered there is lack of information around how data protection elements would affect the quality of the data shared and negatively impact market growth. The Project did not meet criterion 2 because the Project did not provide a net benefit to electricity consumers due to a lack of clarity on how benefits would be passed onto the consumer. Ofgem agrees with the Expert Assessors that the Project did not provide value for money and was also not convinced that the flexibility provided by the Project would provide enough benefits to warrant its costs.

Recommended Project specific conditions

N/A

4.1.3 10124552, Sea Change

Submitted Project description

The decarbonisation of the marine sector is likely to drive a substantial surge in national electrical demand. The sector has a critical role in UK economy and supporting island communities, but is also complex, with huge diversity across ports and their stakeholders.

Seeking to address this challenge, SeaChange will:

- build a replicable, localised model for exploring energy transition scenarios for the sector and electricity network.
- develop a tool to understand potential maritime energy demands and considerations for optimised network investment planning
- investigate potential business models to facilitate the transition; and
- consider regulatory implications for critical national infrastructure.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met

4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria, and Application is recommending this Project for funding. The Project addresses the Innovation Challenge as it demonstrates how a coordinated approach between ports and DNOs can initiate the necessary steps to achieve the switch from current fuels in a synchronised manner, to manage and reduce peak loads. The Project focuses on an area of new demand in the maritime sector which needs urgent decarbonisation therefore is considered innovative and novel. It will provide relevant evidence and opportunities to manage the transition more cost-effectively. The Project has a clearly identified potential to deliver benefit for electricity consumers through potential savings in reinforcement costs and ultimately end user bills. The Project involves network innovation through complex modelling of a highly variable and currently distributed energy demand scenario. The Project does not undermine the development of competitive markets. The Project includes participation from a range of stakeholders as it includes industry, academia and leaders in the energy sector. One Expert Assessor noted that relevant input from the wider transport community around ports could be further enhanced. While there were some concerns on the day rates, the Expert Assessors ultimately considered that this Project represents good value for

money as the costs are clearly defined and the split between Project Partners is reasonable. Expert Assessors considered the Project to be well thought through and have a robust methodology so that they are capable of progressing in a timely manner because the Project clearly identified the risks and outcomes, as well as presenting a need in the maritime sector for this Project.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

The Funding Party must provide to its Monitoring Officer by the end of Alpha Phase a plan on how the Project intends to further enhance the relevant input from the wider transport community around the ports.

4.1.4 10127982, SANND (Scenario Analysis for Non-Domestic Network Decarbonisation) (R3A)

Submitted Project description

Decarbonisation pathways for complex Industrial and Commercial (I&C) sites such as hospitals, universities and factories create uncertainty for network operators, making it difficult to forecast energy demand changes. The Scenario Analysis for Non-domestic Network Decarbonisation (SANND) Project aims to develop a software tool that refines predictions of HV-connected site decarbonisation scenarios. SANND will enhance forecasts of future demand change due to decarbonisation, energy vector change, or renewable connection, improving network investment planning and reducing customer connection upgrade delays. We will develop an intuitive data collection process for I&C customers, improving network investment decisions and providing actionable decarbonisation insights for customers.

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding because Eligibility Criteria 4, 5, 6, 7 and 8 were not met. Whilst, the Expert Assessors did consider that the Project met the aims of the Innovation Challenge, they did not consider the Project to be innovative and risky because the development of the SANND tool is relatively incremental progress, building on existing

models rather than being step-change. It was agreed there was network innovation in the form of developing a new way to model Industrial and Commercial decarbonisation pathways. The Project is proposing to develop a tool which would be commercially advantageous only to the DNO and does not focus on developing a methodology to be adopted across the sector. The Project was considered by the Expert Assessors to be undermining the development of competitive markets because the lead Network Northern PowerGrid would gain an inherent benefit and advantage in a competitive market, as the tool would provide benefits and options of engaging with customers with new insights. If the Project focused on the methodologies that could be adopted across the sector, it would not have been seen as undermining a competitive market. The private sector industrial and commercial Project Partners, who are fundamental to the Project's credibility, were not represented in the Project team therefore the Expert Assessors did not consider the Project to meet Eligibility Criterion 6. The Expert Assessors stated that in order for the Project to have clearly identified potential to deliver a net benefit to electricity consumers, the roll-out of the tool must support consumers decarbonisation planning and reducing costs for consumers. The Expert Assessors were not satisfied with the Project's response about the stakeholder engagement plan during the interview due to the lack of Industrial and commercial customer representation. In addition, the Expert Assessors believes the Project lacked value for money because the supporting case for benefits to consumers has not been sufficiently evidenced or substantiated. Finally, the Application lacked well thought through and robust methodology which gave confidence of delivery in a timely manner because it underestimates the variety, diversity and the commercial sensitivities within the Industrial and Commercial sector.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 4, 5, 6, 7, and 8. The development of the SANND tool represents relatively incremental progress, building on existing models rather than being a step-change; therefore, the Project is not considered innovative. The Project did not meet Eligibility Criterion 6 because private sector industrial and commercial Project Partners, who are fundamental to the Project's credibility, were not represented in the Project team. The supporting case for benefits

to consumers has not been sufficiently evidenced in the application. Ofgem agrees with the Expert Assessors that the proposed methodology does not demonstrate a clear understanding of the variety, diversity, and commercial sensitivities in the industrial & commercial sector, thereby risking the Project's success.

Recommended Project specific conditions

N/A

4.1.5 100128804, Nature4Networks

Submitted Project description

Our electricity network faces significant challenges from climate change including flooding, overheating and frequent storm-force winds. Traditional grey engineered solutions (e.g., concrete flood defences or cooling systems) are effective but carbon-intensive and provide limited additional benefits. The Nature4Networks Project explores Nature-based Solutions (NbS) as innovative, sustainable and resilient alternatives for use with GB energy networks. Nature4Networks will not only deliver network resilience and reliability and financial efficiencies that positively impact customer bills. It will also deliver wider ecosystem service benefits, including flood resilience, carbon removal, biodiversity enhancement, social benefits, and asset regulation, e.g., noise abatement and temperature control.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met all the Eligibility Criteria, and Application is recommending this Project for funding. The Project addresses the aims of the Innovation Challenge as it proposes cheaper and less carbon intensive solutions for resilience against traditional methods such as concrete defences. It has a clearly identified potential to deliver a net benefit to electricity consumers by addressing climate change impacts on electricity network assets, and offers additional societal benefits such as enhanced biodiversity, carbon sequestration and social wellbeing. The Project involves network innovation in the approach of incorporating nature-based resilience solutions into investment decisions to support faster, cheaper, and more resilient network transformation and an accelerated journey to Net Zero. The Project is innovative and risky as the way in which innovation is applied and efficacy of the

proposed approaches in conjunction with network assets are untested, there are currently no mechanisms to value nature-based resilience solutions as investment options, and there are currently no regulatory mechanisms to fund nature-based solutions within business as usual. The Project does not undermine the development of competitive markets. The Project includes participation from a range of stakeholders as all Project Partners are experts in their respective areas with clearly defined inputs into the Project. Whilst the Expert Assessors believes the Project overall to be providing value for money and be costed competitively by delivering financial efficiencies which will be passed onto customer bills, one Expert Assessor noted the balance of day rates between Project Partners could have been improved as the rates for one consultancy seemed high and will be monitored during the Project. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project plan and team structure is well thought through. However, one Expert Assessor felt there could have been more detail provided within the Project plan.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

4.1.6 10129379, Real Time System Model

Submitted Project description

The Project aims to develop a real-time system model for the entire GB electricity transmission network to determine the effects of oscillations (interactions) on the system for planning and operation.

A real-time model of this scale will be a global first. If successful, it will allow networks to reduce interaction risk and thus reduce constraint costs and network services.

The work will include models of assets including wind farms, turbines, synchronous generators, and HVDC converters. The Project will leverage new technology solutions such as virtual replicas" and explore the use of Quantum Computing to drive an efficient and cost-effective approach.

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors agree that the Project has not met the Eligibility Criteria and do not recommend this Application for funding. While the Project is recognised to have met the Innovation Challenge as an ambitious effort to develop a comprehensive Real-Time System Management (RTSM) for the GB electricity system, significant concerns undermine its potential, leading to the conclusion that the Project has failed to meet Eligibility Criterion 2, 5, 6, 7, and 8. The Expert Assessors noted that the expected benefits up to 2031 are relatively low, and the long-term reliability of these estimates is not adequately supported by evidence in the Application, therefore do not consider this Application clearly identifies potential to deliver a net benefit to gas or electricity consumers. The Expert Assessors agree that there is network innovation as the tool proposed to use in the Project does not exist outside of regional case studies and uses quantum computing elements, however, the Project was not considered to be novel or risky as the Project fails to convincingly justify why it should be considered a non-business as usual endeavour, overlooking critical aspects such as the future development of the GB electricity system and the evolution of flexibility markets. Although, it was noted the Project itself does not undermine the development of competitive markets. Additional concerns were raised by the Expert Assessors include a poorly justified rationale for quantum computing. The Application lacked detail on the Project team roles and a lack of demonstrable engagement with Original Equipment Manufacturers (OEMs), therefore Expert Assessors considered there was not suitable participation from a range of stakeholders.

The Project was considered not to have a robust methodology for delivery because the stakeholders involved are not domain experts for the methodology proposed. The Project was not considered value for money because of the Project unjustified costs for Scottish Power Transmission and somewhat vague commercial case,

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 2, 5, 6 and 7. Ofgem considered the lack of information around how data protection elements would affect the quality of the data shared and negatively impact

market growth. The Project did not meet essential criterion 2 because the Project did not provide a net benefit to electricity consumers due to a lack of clarity on how benefits would be passed onto the consumer. Ofgem agrees with the Expert Assessors that the Project did not provide value for money and was also not convinced that the flexibility provided by the Project would provide enough benefits to warrant its costs.

Recommended Project specific conditions

N/A

4.1.7 10130442, REVISE

Submitted Project description

The primary focus of REVISE is revisiting the current methodology for assigning overhead line ratings. The calculation process uses historical environmental data captured in the 1980s that is applied uniformly across the UK disregarding local/regional climate variations. The existing transmission network is increasingly constrained by system capacity limits exacerbated by rapidly increasing renewable integration. Improving understanding of line ratings, using latest generation high-resolution weather topographic data combined with the latest techniques for system modelling, will allow for improved targeted investment to ensure we meet demand for the connection of new renewables to the network, and deliver a secure energy system.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria and recommend this Project for funding. The Expert Assessors considered that the Project meets the Innovation Challenge as it aligns with goals for improved whole system planning using demonstrable evidence of digital simulation and advanced modelling techniques. The Project involves network innovation as it seeks to enhance the utilisation of network and generation assets by refining the methodology for rating overhead lines, which could potentially increase capacity by 2-5% and reduce renewable energy curtailment and as a result is innovative and novel. The Project does not undermine the development of competitive markets. The Project scope and Project methodology is considered well defined, with a strong consortium and appropriate range of stakeholders to give confidence that it will achieve the stated outcomes. One Expert Assessor

stated that it would be beneficial to also investigate real-time cable heating due to power losses and its effect on transmission capacity, which would provide further funding justification for the Project. Another Expert Assessor mentioned that the Application could be further strengthened by allocating resources to managing external communications risks, and an initial stakeholder engagement plan, particularly for renewable energy generators, which should be developed during the Alpha Phase. Overall, this is considered to be a strong Application, and the Project is costed competitively as the costs represent excellent value for money for the methodology proposed. The Expert Assessors believes the utilisation of existing assets by the Met Office and SSEN Transmission further enhances the value of this Project s.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

For the end of phase meeting, the Project should present a comprehensive stakeholder engagement plan to indicate how the solution will be disseminated and implemented. This plan should specifically address the needs and expectations of transmission-connected generators and off-takers. In line with Ofgem's Data Best Practice Guidance, the final report should be made public, with full transparency regarding the methodologies employed to enhance modelling and industry standards. This could involve the publication of the report on a recognised platform, such as a professional forum such as the International Council on Large Electric Systems, informally known as, CIGRE.

4.1.8 10130736, UN:LOCK - Unblocking Networks: Local Optimisation,
Consumers and Knowledge

Submitted Project description

"In some areas of Great Britain, high penetration of distribution connected generation is causing network constraints that are blocking the connection of more renewable power. Traditional network reinforcement typically has long lead times, and these delays are slowing the decarbonisation of the country's energy system.

Project UN:LOCK is exploring novel commercial arrangements to maximise existing network capacity in constrained areas to support the roll out of new generation assets whilst the long-term network reinforcements are being delivered. This will create additional local economic benefit for both generators and consumers as well as accelerate progress to a Net Zero society."

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

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
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Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding as Eligibility Criteria 2, 3, 5, 7 and 8 were not met. Whilst the Project addressed the aims of the Innovation Challenge by decreasing the connection of new distributed generations and additional demand on the network. The Project did not have a clearly identified potential to deliver a net benefit to consumers as possible benefits and how they would be passed to consumers were unclear. The Expert Assessors agreed that, whilst the problem the Project proposes to solve is important, the Project itself does not involve network innovation as it interprets existing network offers and should be undertaken as part of business as usual. It was not clear how the Project will extend DNO optimisation beyond business as usual, and consequently the Expert Assessors did not consider the Project to be innovative or novel. The answers given by the Project team in the interview also indicated a different direction for the Project than that in the Application, and the Expert Assessors were concerned that different parts of the Project team may have different ideas for the Project scope. The Expert Assessors did not consider the Project to be costed competitively as the costs for one Project Partner are too high for the work proposed, especially as it is unclear where the modelling produced will be used. The Project was not viewed as having a robust methodology and capable of progressing in a timely manner due to a lack of clarity in what would be delivered as well as insufficient delivery timelines.

Overall, the Project does not undermine the development of competitive markets and does include suitable participation of a range of stakeholders such as a community group, an energy system expert and a local consultancy.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criterion 2, 3, 5, 7, and 8. The Project could not clearly define how electricity or gas consumers would be provided with net benefits. Additionally, the Project did not provide an innovative or novel solution as the solution provided should be taken as business-as-usual. Ofgem agrees with the Expert Assessors that the Project does not have a robust methodology and capable of progressing in a timely manner due to a lack of clarity in what would be delivered as well as insufficient delivery timelines.

Recommended Project specific conditions

N/A

4.1.9 10130964, Cross Vector Hub

Submitted Project description

Cross-Vector Energy Hubs can leverage the flexibility of both Electrical and Gas technologies to support the electricity system and release grid capacity via coordination of these parallel energy vectors. The Project builds and demonstrates a planning and simulation toolset that evaluates the Cross-Vector Energy Hub, allowing both DNOs and prospective Energy Hub developers/owners to simulate the coordination of electrical and gas technology components. The toolset models the control of device portfolios as configured by user, quantifying the value of constraint-limitation and feasible device coordination (technical), which can then feed into assessment of the commercial value for such coordination (economic).

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree all Eligibility Criteria have been met and recommends the Project for funding. The Project addresses the Innovation Challenge as it explores a novel area of cross vector development with potentially significant capacity to support the Net Zero transition by addressing whole system integration. Whilst the Project was considered to have a clear potential to deliver a net benefit to consumers, the Expert Assessors commented that the stakeholder engagement plan could have been enhanced ahead of this Phase to refine the tool design and ensure the Project avoids producing products which are biased or do not meet user needs. The Project involves network innovation as it is examining the potential for networks to effectively participate in the assessment and building of cross vector energy hubs, and the Expert Assessors were pleased to see consideration of gas networks as well as electric. The Expert Assessors

agreed the Project does not undermine the development of competitive markets but noted there is significant work to be done in defining 'open source' and 'open data' as well as ascertaining the willingness of other Networks to sharing their data and Ofgem's capacity to integrate the Project's data into existing tools and frameworks. Whilst the Expert Assessors considered that the Project include a suitable range of stakeholders, they did recommend the Project demonstrate engagement with a wider range of potential users, as well as work on articulating the route to market including a thorough assessment of barriers and strategy to overcome them. Overall, the Project was considered to be good value for money and was well thought through and a robust methodology.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agree with the Expert Assessors and approve this Project for funding.

Recommended Project specific conditions

At the kick off meeting, the Project should share a revised map and plan for engagement of additional stakeholders to engage include Local Area Energy Planning practitioners, National Grid Energy System Operator (particularly the Regional Energy Strategic Planning team), energy hubs, Local Authorities, supply chains etc. The plan should also include internal network engagement (i.e., within Northern Power Grid and Northern Gas Networks), engagement with other networks and engagement with Ofgem is required to understand the willingness to share data and ability to integrate data. An update on this engagement should be presented at both the mid-point and end of Phase meeting.

At the mid-point meeting, the Project team should outline what they classify as 'open data' and 'open source' and ensure compliance with Ofgem's Data Best Practice.

At the end of Phase meeting, the Project team should present to the monitoring officer a timeline of which tools will be utilised at which point.

Submitted Project description

The REACH Project focuses on helping customers make cost-effective decarbonisation choices through two innovation streams. The REACH Energy Centre Specification stream aims to refine the REACH Energy Centre's design for efficient energy solutions. The Community Engagement stream develops tools to assist communities in understanding their decarbonisation options. Central to this is the Community Guidance Tool, designed to help communities navigate decarbonisation by providing essential data on carbon reduction, Project costs, and implementation requirements. This tool also evaluates current activities and assesses the viability of the REACH Energy Centre compared to conventional methods.

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

8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met
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Recommendation to the 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 Project addresses the Innovation Challenge because it has potential to improve connection times for low carbon technologies in rural areas, and support customers in rural areas to make cost-effective decarbonisation choices, by developing tools for quickly assessing the feasibility of developing energy centres. The Project has a clearly identified potential to deliver a net benefit to electricity and gas consumers by saving on energy bills, reducing network costs, and decreasing greenhouse gas emissions through enabling the faster uptake of low-carbon technologies in rural areas. Development of community-owned local energy centres should also produce benefits to consumers in shared revenues from network flexibility and potentially more resilient supply side services. However, one Expert Assessor noted that more detailed quantitative assessment of the expected benefits would have enhanced the application. The Project is considered to involve network innovation as it aims to fill a gap in the decarbonisation of rural areas, where network investment may be slow and costly, by providing two solutions that are innovative and not yet available on the market, therefore it was also considered to be innovative and novel. One Expert Assessor noted that a comparison with other novel approaches to the problem would have enhanced the Application. The Project does not undermine the development of competitive markets. The Project includes participation from a range of stakeholders because it has a wide consortium involving academics, energy networks, consultancy specialised in community engagement, consultancies with economics expertise, and technology providers. The Project is delivering value for money and costed competitively because within the funding requested it aims to gather the requirements and co-design with users a tool for running feasibility studies for energy centres in rural areas. While doing this, it also aims to develop technical feasibility studies for building 2-3 energy centres in rural areas by engaging 10 rural communities. The Project has a robust methodology which gives confidence

that it will be capable of progressing in a timely manner, because there is a clear and appropriate division of responsibilities between Project Partners.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agree with the Expert Assessors and approve this Project for funding.

Recommended Project specific conditions

The Funding Party must provide to its monitoring officer by the end of the Alpha Phase comparisons with other innovative approaches to support rural communities in accelerating connection time.

4.1.11 10126497, Carbon and Hydrogen Transportation to SAF Production Facilities

Submitted Project description

The aviation industry is responsible for around 8% of the UK's emissions. Sustainable Aviation Fuel (SAF) will play a key role in reducing emissions from aviation through to 2050 and beyond. One method of SAF production uses hydrogen and CO₂ as feedstocks. National Gas are developing hydrogen and CO₂ transmission pipelines to support the UK's decarbonisation targets.

This Project will explore the technical and commercial requirements to enable hydrogen and CO₂ pipelines to connect to SAF production facilities, potentially reducing the cost of SAF production and supporting the scale-up of SAF production in the UK whilst reducing reliance on imports.

Eligibility Criterion

Met / Not Met

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding as Eligibility Criterion 2 and 7 were not met. Although the Project met the broad aims of the Innovation Challenge, the Expert Assessors considered that it was not sufficiently clear what the vision was for outputs of the Project, particularly those around the digital solution. The Project was considered to include Network innovation and be innovative and risky because the markets for SAF, hydrogen and CO2 are nascent, dependent on government strategy and funding, and reliant on technology

improvements to deliver cost competitiveness versus the traditional jet fuel market. The Project does not undermine the development of competitive markets. This contributed to a lack of clarity around the commercialisation journey and how the Project would deliver a net benefit to the consumer, meaning the Expert Assessors did not consider Eligibility Criterion 2 to have been met. The Project was also not felt to be delivering value for money and be costed competitively as there is an imbalance between the cost of the digital solution and the potential benefits. The high-level benefits in the Application were not sufficiently articulated to give the Expert Assessors confidence that the Project would provide value for money and so it was agreed Eligibility Criterion 7 had not been met. Whilst the Project involves a range of stakeholders, it has a large consortium, and the Expert Assessors believe more detail could have been provided on how the Project would manage this within its Project plan.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 2 and 7. Ofgem considered the lack of information around how data protection elements would affect the quality of the data shared and negatively impact market growth. The Project did not meet Eligibility Criterion 2 because the Project did not provide a net benefit to electricity consumers due to a lack of clarity on how Project would be commercialised, and benefits passed onto the consumer. Ofgem agrees with the Expert Assessors that the Project did not provide value for money and was also not convinced that the benefits of the Project outweigh the cost of the digital solution.

Recommended Project specific conditions

N/A

4.1.12 10131749, Electric Thames

Submitted Project description

Today, the vessels, docks, and ports operating on the Thames run mostly on fossil fuels, but this is changing as the river's economy decarbonises. There is limited understanding how this shift will affect the electricity network.

Working together with stakeholders across marine and energy industry, we will map out the future of maritime transport in the central Thames area and explore the potential benefits of Boat to Grid (B2G) charging. The outcomes will shape a whole system planning framework for our waterways, offering insights for decarbonisation and electrification that can be replicated across Great Britain.

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

8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met
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Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria and recommends this Application for funding. The Project addresses the Innovation Challenge by tackling the decarbonisation of a complex core sector of UK transport energy demand. The Project is innovative and novel as it explores increasing the electrical energy needs of a future 'green' Thames through assessment of how and where the operational vessels will be fuelled. The Project has a clearly identified potential to deliver a net benefit to electricity consumers because it aims to lower the costs of decarbonising the marine sector which will reduce the network cost element of bills for all consumers, through cost reductions to network reinforcement and potential increased flexibility in the energy system. The Project involves network innovation in the use of hydrogen, as well as with using batteries both for vessel recharging and grid services or novel vessel recharging infrastructure. Optimisation of a development plan which meets the needs of the river, and the local adjoining area is required to derive a future requirement map for the network, something not delivered previously. The Project does not undermine the development of competitive markets. The Expert Assessors agree the Project is innovative because it is the first clean maritime planning framework that considers network requirements in parallel with the requirements of marine users, Local Authorities and other key stakeholders. The Project works with a large industry across one of the busiest waterways within one of the most complex city energy systems, which creates significant risk. Whilst the Expert Assessors agreed the overall costs of the investigative elements of the Project are value for money, there was a concern regarding the Project management element being a significant percentage of the Project total cost. The Project plan is robust with appropriate deliverables and milestones, which gave confidence to the Expert Assessors that it can progress in a timely manner.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

4.1.13 10126499, HyNTS Maritime

Submitted Project description

There are countries capable of producing excess solar and wind energy and accessing this low-carbon energy in the energy transition could help accelerate the UK's Net Zero plans. Maritime ports could be key to receiving this energy; in the same way that liquid natural gas is currently imported, ammonia could be used as a carrier liquid to reduce the costs of transporting low-carbon hydrogen over long distances. This Project will explore how UK maritime ports could connect to large scale hydrogen infrastructure across the UK and consider the technical requirements for ammonia cracking to provide green hydrogen to users.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met

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

Recommendation to the Gas & Electricity Markets Authority
<p>FUND</p> <p>The Expert Assessors determined that all Eligibility Criteria have been met and have recommended this Project for funding. The Project addresses the Innovation Challenge because it explores the modelling and planning capability across networks to support holistic and timely system development for port decarbonisation. It involves network innovation by accelerating the connection of green hydrogen to the gas grid through an interconnected, networked energy storage system. The Project was considered to be novel and risky by the Expert Assessors because the technology for ammonia cracking has not been demonstrated at scale. The Project was not considered to undermine the development of competitive markets.</p> <p>Whilst the Expert Assessors considered the Project to provide net benefit to consumers, one Expert Assessor felt that the Project’s benefits could have been strengthened by providing greater details on how the proposal will improve energy resilience, with emphasis on how the Project plans to diversify the supply of green energy into the UK. They also recommended that further analysis needs to be undertaken on the Cost Benefit Analysis and route to market to articulate the business model which will realise the true extent of any such commercial benefits. Despite these concerns, the Expert Assessors considered the Project to provide value for money and to be costed competitively.</p>

The Expert Assessors considered the Application to include a robust methodology so that the Project could progressing in a timely manner. All Expert Assessors strongly recommended that Work Package Six should be removed from the requested costs and funded by National Gas as they did not see how the resale of ammonia for localised port usage would return benefits to the gas or electricity consumer.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem does not agree with the Expert Assessors and does not approve this Project for funding. Ofgem considers the Project to have not met Eligibility Criteria 1, 2, 3 and 7. The key output would be scaled ammonia cracking capability at ports and a route to import green hydrogen for GB. Although this is an opportunity to support the green hydrogen supply chain, this does not align with the Innovation Challenge and was not considered to provide innovation to the GB network. A more suitable funding route should be explored for this venture, which Innovate UK and Ofgem will address in speaking to the Project team.

Ofgem also noted the lack of detail in the Cost Benefit Analysis submitted by the Project which made little references to the efficiency and losses of ammonia production and cracking as opposed to importing hydrogen by other means. The Cost Benefit Analysis did not include the counterfactual of local green hydrogen production, because of this, Ofgem does not consider the Project to have demonstrated a net benefit to consumers and value for money.

Recommended Project specific conditions

N/A

4.1.14 10128461, Road to Power

Submitted Project description

Road to Power responds to the unique challenges for decarbonisation of street works with 7.8TWh of energy demand is currently used per annum across 700,000 major works. Supplies need to support high, temporary, non-static demands with inflexible charging times. The uncertain electrification/ hydrogen conversion split for mobile machinery complicates forecasting and as the same machinery is used elsewhere the scope of Road to Power has been extended beyond street works. Discovery Phase work has confirmed that stakeholders need a new tool to request temporary supplies that can make use of interruptible/ flexible connections and provide multiple options.

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

8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met
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Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agreed that all the Eligibility Criteria have been met and recommend this Project for funding. The Expert Assessors agreed that the Project meets the Innovation Challenge as the self-service tool being developed will focus on flexible and interruptible connections, providing large temporary connections for construction sites, with minimal need for network reinforcement. This will in turn help to enable the decarbonisation of non-road mobile machinery as this industry makes the Net Zero transition. The Project has a clearly identified potential to deliver net benefit to electricity consumers by reducing network reinforcement and inefficiency costs. The Project does not undermine the development of competitive markets. The Expert Assessors felt that the interview helped clarify the achievability of the Project scope within the 6-month timeframe, presented strong buy-in and understanding from Project Partners and showed a good understanding of key risks around availability of network models with good mitigations in place. This gave confidence that the Project is well thought through with a robust methodology. The Expert Assessors were further satisfied through questioning that the Project presented good value for money.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agree with the Expert Assessors and approve this Project for funding.

Recommended Project specific conditions

N/A

4.1.15 10131011, Look NorthH2

Submitted Project description

The scale of investment required to capitalise on GB's abundant offshore-wind resource and decarbonise our economy by 2050 and power system by 2035 is vast. Developing the infrastructure to allow energy from these resources to reach consumers, whether electricity or hydrogen, is expensive, technically complex, creates system operability challenges and can be disruptive to communities.

This Project seeks to explore and develop an open-source standard framework to assess the impact of taking a cross-energy vector approach and co-locating assets offshore including on artificial islands -- with a view to addressing parts of challenges mentioned above and ultimately reducing costs to consumers.

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

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

Recommendation to the 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 Project addresses the Innovation Challenge because it is developing a model which will optimise North Sea investments across the energy system. It will support efficient planning of offshore electricity networks as well as wider offshore energy infrastructure. The Project has a clearly identified potential to deliver a net benefit to electricity consumers through more efficient design of the offshore electricity transmission network in a way that takes account of wider whole energy system considerations, which will reduce the cost of the energy transition to consumers. The Project involves network innovation which will combine electricity system modelling, gas pipeline modelling, hydrogen, and carbon system modelling, representing an example of whole energy system innovation that includes specific development of electricity network techniques. The Project does not undermine the development of competitive markets. The Project is also innovative and risky as the North Sea will offer some extreme challenges within the development of the concept, especially given the most optimised location to initially deploy the solution will be furthest from shore. The Project is providing value for money as the overall cost, day rates, and allocation of funds across Project Partners appears appropriate for the scale and scope. It has a robust methodology and will be capable of progressing in a timely manner, evidenced through a thorough Project plan, detailed milestones and deliverables and a suitable risk register. The Project has a suitable and wide range of Project Partners bringing the expertise expected in a range of offshore energy asset types and in developing modelling frameworks.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agree with the Expert Assessors and approve this Project for funding.

Recommended Project specific conditions

N/A

4.1.16 10131209, HIRE - Hybrid Network Improvement and Reliability Enhancement

Submitted Project description

Offshore wind energy is pivotal for the UK's Net Zero grid ambitions however, increasingly, cable failures pose financial and reliability challenges for new and existing Projects. This Project will expand on the Discovery Phase which considered new, innovative monitoring of temperature, vibration and integrity of insulation. The Alpha Phase will identify the fundamental failure mechanisms in high-voltage cables and requirements for future monitoring systems. The underpinning knowledge will enable the development and trial of novel fault location and condition monitoring tools in Beta Phase, ultimately safeguarding the delivery of clean energy transition by improving the cables' reliability, safety and efficiency.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met

4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria and recommends this Project for funding. The Project addresses the Innovation Challenge as identifying the failure mechanisms in high-voltage cables and investigating an alternative electro-magnetic monitoring approach for future monitoring systems could enhance network resilience and optimise operation of the offshore wind system. The Project has a clearly identified potential to deliver benefits to consumers as it has the potential to significantly reduce both cable failure costs and insurance premiums currently accounting for a significant proportion of total insurance costs for undersea cables, which in turn will reduce network operations costs. The Project involves network innovation by developing monitoring techniques for long distance cables, with the Expert Assessors considering the electromagnetic technique particularly innovative. The Expert Assessors agreed the Project was innovative and risky in its aim to mitigate potential barriers to commercialisation of the cable monitoring techniques. The Project does not undermine the

development of competitive markets. Whilst the Project was considered to provide value for money, the Expert Assessors recommended that a more targeted and focused literature review of existing work in this area would be beneficial for the Project. Overall, the Project appeared to have a robust methodology and appeared capable of progressing in a timely manner.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem disagrees with the Expert Assessors and does not approve this Project for funding. Ofgem considers that Eligibility Criteria 5 has not been met because the Project fails to demonstrate Network Innovation. This is because Ofgem considered there to be existing cable monitoring solutions as well as those that are currently being developed on a commercial basis, which suggests that this Project should be undertaken as a business-as-usual activity or through alternative funding routes. In addition, Ofgem considered that the innovation need for this lies with the owner and operator of the interconnectors, of which the solution may not significantly provide a net benefit to GB transmission network operators, further evidencing the need that this Project does not demonstrate network innovation. Therefore, Ofgem was uncertain of the net benefit posed by National Grid Electricity Transmission's role in leading the Project, and the support offered by SSEN Transmission's role as Project Partner.

Recommended Project specific conditions

N/A

4.1.17 10132124, DataMate

Submitted Project description

As more Low Carbon Technologies (LCTs) connect to the network, UK Power Networks have experienced an increase in complaints from customers due to voltage limits of LCT equipment being triggered. Currently, there is no granular view of voltage levels immediately available to

conduct a root-cause analysis, which hinders the ability to provide conclusive and quick responses to issues. However, this detailed data is available from customers' own LCTs. DataMate aims to better understand LCTs voltage impact on the network by collaborating and establishing data-sharing partnerships with LCT providers and aggregators to enable proactive response from DNOs and improve customer experience.

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding as Eligibility Criterion 2, 4, 6 and 7 were not met. While the Expert Assessors agreed that faults on the low voltage network due to low carbon technology addresses the aims of the innovation challenge, and that data from low carbon technology may help inform networks in this respect, the Expert Assessors considered that the remit was too narrow to deliver the benefits outlined. The Expert Assessors did not consider the Project to have clearly articulated that it is not undermining the development of competitive markets because it was not made clear how the Project would bring onboard a wide range of LCT providers and involve other DSOs. It was therefore considered that a solution which is too narrow could potentially undermine the development of competitive markets. To increase the chance of delivering material benefit, and guard against duplicative efforts, a Project targeting this problem would need to have more thorough stakeholder engagement component and involve more low carbon technology providers and other networks, to go beyond doing research for a potentially isolated solution. Consequently, the Expert Assessors did not consider the Project to involve a sufficient range of stakeholders. The Expert Assessors did not consider the Project to be delivering value for money and be costed competitively because the Project was not ambitious or far reaching enough to deliver the outlined benefits. However, the Expert Assessor did consider the Application to include a robust methodology.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 2, 4, 6 and 7. Ofgem considered the Project to undermine developing competitive markets due the Project being unable to provide information on how additional LCT providers and DSOs would be involved for the betterment of the Project. The Project did not meet Eligibility Criterion 6 because the Project did not have satisfactory stakeholder engagement which would have allowed the Project to move passed just doing research. Ofgem agrees with the Expert Assessors that the Project did not provide value for money as it did not provide enough benefits against the cost of the Project.

Recommended Project specific conditions

N/A

4.1.18 10132182, CLIP: Community Led Integrated Planning

Submitted Project description

CLIP will support whole system planning by enhancing current approaches for creating localised plans and viable Projects to meet carbon targets. It complements and aligns with Local Area Energy Planning, helping clusters of communities including community groups, parish councils and others to develop tailored local plans for their neighbourhoods. CLIP includes mechanisms for community engagement, technical and economic appraisal of low carbon technology options, and validation with electricity network data and asset plans. Outcomes include localised decarbonisation plans, Project portfolios, and increased level of confidence from using localised data and information.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Not Met
4: Projects must not undermine the development of competitive markets.	Met

5: Projects must be innovative, novel and/or risky.	Not Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding because Eligibility Criterion 3 and 5 were not met. Whilst the Project addressed the aims of the Innovation Challenge, the Project was not considered to involve network innovation because it focuses on the collection of new data rather than on establishing common data standards for Local Area Energy Plan (LEAP), Regional Energy Strategic Plan (RESP), and community energy plans to ensure interoperability between community plans, LAEPs, and RESP. The Project was not considered novel or risky because it did not provide enough information on what differentiates CLIP approach from other innovation Projects such as Local Energy Oxfordshire - Neighbourhoods (LEO-N), ZeroCarbon.Vote, LAEP+ looking into the same type of solution. Although, it was noted that the Project does not undermine the development of competitive markets. Whilst the Project overall was considered to be delivering value for money, the Expert Assessors felt that the costs of one Project Partner are excessive for the activities proposed. The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because it involves consultancies with subject matter expertise, community energy groups, local authorities, net zero hubs, and a DNO. Additionally, it was not clear from the responses why the two identified subcontractors were not included as Project Partners given their lead on work packages.

The Application did have a robust methodology, but the Expert Assessors suggested the Project could have been enhanced by including common data standards and details on the complimentary nature of this Project against LEAP, RESP, and community benchmarks for local energy planning.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors and has not recommended this Project for funding because the Eligibility Criteria 3 and 5 were not met. Ofgem agrees with the Expert Assessors' assessment that the suggested approach could deliver the intended outcome and would replicate other existing Projects. The Project was deemed to not include enough innovation as the Project did not show sufficient awareness about knowledge gaps in community energy planning. In addition, the Application was not considered to be innovative, novel and/or risky as it did not articulate how their Project is additive/different to existing initiatives looking at creating more actionable plans than LAEPs.

Recommended Project specific conditions

N/A

4.1.19 10132187, HeatNet

Submitted Project description

Heat pumps are essential for reducing the UK's building emissions, but their widespread use could strain local electricity networks. HeatNet will demonstrate how coordinating heat pump operations with advanced algorithms can address these challenges.

HeatNet will develop innovative machine-learning tools to manage heat pump power loads to help regulate voltage drops at the grid edge and ensure customer warmth. Our aim is to develop an independent service to accelerate the electrification of heat with new strategies that improve voltage quality and network reliability.

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

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria and recommends this Project for funding. The Project addresses the Innovation Challenge by developing both digital tools and commercial arrangements aiming to improve the coordination between heat pump operation and network investment. The Project has a clear potential to deliver benefit to consumers through reduced or deferred network investment costs by more efficient use of low voltage network capacity. The Expert Assessors agreed the Project involves network innovation as it includes network modelling and the development of coordinated network and heat pump operating strategies and commercial arrangements which would share the value realised between the DNO and customers. The Project does not undermine the development of competitive markets. The Project is innovative and novel in its approach to collective asset management and managing network loading. There is also risk in the challenge of commercialising the techniques and rolling the concept out in practice. The Project involves participation from a range of stakeholders as the consortium includes varied expertise and there is a clear approach set out to engagement with a variety of stakeholders. The Project provides value for money and is costed competitively as the balance of costs between consortium members seem reasonable and if successful in roll out would deliver benefits Project in terms of savings compared to current business as usual practices, particularly as heat pump installation targets increase. The Expert Assessors state the Project has a well-developed methodology which clearly shows how the outcomes of the Project will be delivered and ensures that the Project can meet its core objectives and support the objectives of the SIF. This is evidenced by a detailed Project plan with clear and appropriate deliverables and clear assignment of responsibilities.

Decision from the Gas & Electricity Markets Authority**FUND**

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

Recommended Project specific conditions

N/A

4.1.20 10132411, Wayl-Ease

Submitted Project description

Gaining consent from third party landowners to install, maintain, and upgrade network equipment is a challenge for network operators. When a customer wants to connect to the network or operational works are required, delays in securing consent from landowners is a barrier, causing frustration to all.

Wayl-Ease seeks to create a transparent, secure platform for consents and link network operators and landowners via an automated self-service, online engagement and digital payment platform. By creating a novel data-led process to give customers visibility of consents, Wayl-Ease will facilitate improved planning, faster network transformation and more informed customers.

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

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

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met all of the Eligibility Criteria and recommends this project for funding. The proposed online automated self-service, digital platform will help facilitate faster network roll-out and improve the planning process through more informed customer engagement on wayleave agreements in a transparent manner and, reduce the overhead costs of wayleave arrangements for consents by linking network operators and landowners directly without the need for claim agencies. The Project does not undermine the development of competitive markets. The Project is innovative and novel as it explores the deployment of advanced modelling techniques, such as artificial intelligence methods, to identify network assets from customer photographs to better inform landowners regarding the wayleave agreement and avoid unnecessary disputes or claims. The successful deployment of online self-service facility will directly link network operators with landowners, thus saving potential agent fees for the landowners and eliminating unnecessary visits to customer premises for the networks. The Projects is well thought through and has a robust methodology so that it is capable of progressing in a timely manner because work packages have been proposed with clearly defined Project plan, milestones, risks and mitigating factors which gives confidence to the Expert Assessors. The Project provides adequate participation from stakeholders by including a range of technical experts while also including interviews with participants of the Project.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

None

4.1.21 10132743, KnowMyFlex

Submitted Project description

Energy flexibility is essential for transforming to a Net Zero energy system. For customers adopting low carbon technologies, smart management of these flexible assets will empower them to use less energy, reduce bills, and make the most of low carbon energy.

KnowMyFlex proposes to create Energy Flexibility Certificates, similar to EPC ratings, providing a centralised view of the existing and future flexibility potential of homes and buildings. This will reduce costs for all by supporting customers to engage with flexibility to reduce their bills; market participants in developing propositions; and system operators to better forecast, plan, and operate the energy system.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met

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

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that all Eligibility Criteria have been met and recommend this Project for funding. The Project offers the opportunity to enhance flexibility visibility and explore a digital portal providing dynamic analysis of flexibility performance and fills a current gap. It addresses the Innovation Challenge by combine existing information with models that can identify household thermal efficiency and inertia and thus define a current and future flexibility rating. The Project has a clearly identified potential to deliver significant benefits, particularly to DSOs in terms of investment planning, and demonstrate potential indirect benefits to consumers in encouraging LCT take up, and it could reduce peak network load, reducing energy prices for all. The Project is considered to involve network innovation because it develops digital simulation and advanced modelling techniques to facilitate whole system network planning and development. The Project does not undermine the development of competitive markets. The Expert Assessors considered the Project to be innovative and risky due to the potential regulatory or commercial barriers around accessing and maintaining the required data. The Project is felt to provide value for money as the Project costs are reasonable and outweighed by the potential benefits. It has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because both the Project plan and risk register are comprehensive.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem does not agree with the Expert Assessors' recommendation to fund as it does not consider the Project to have met Eligibility Criteria 3 and 5.

The Project was not considered to be novel and/or risky enough, as the key output of seeking to solve the limited availability of flexibility on the network is not new and there are processes already in development which will achieve what the Project sets out to overcome. The potential regulatory or commercial barriers around data access and maintenance are challenges faced by similar projects. Therefore, the Project does not push the boundaries of current network practices enough to be deemed innovative enough for an Alpha Phase.

The Project aims to enhance flexibility visibility and develop a digital portal for dynamic analysis of flexibility performance. The availability of existing information does not represent a significant advancement over established methods and so Ofgem does not deem this to have met Eligibility Criterion 3. Additionally, while the Project may provide benefits for Distribution System Operators (DSOs) in investment planning and potentially encourage Low Carbon Technology (LCT) uptake, these benefits are not sufficiently unique to be considered novel.

Recommended Project specific conditions

N/A

5 SIF Alpha Phase – [Novel approaches to deliver a secure power system]- Summary

This section covers the assessment of Round 3 Alpha Phase Applications received into the 'Novel approaches to deliver a secure power system' Innovation Challenge⁶.

For the Alpha Phase, 13 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 19 June 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 Recommended for funding (Yes/No)
10126481	LV Optimiser (LVOE)	SP MANWEB PLC	544,577	54,458	490,119	Yes	Yes
10127303	Equiflex	SP DISTRIBUTION PLC	473,347	49,336	424,011	Yes	Yes
10131849	Model for Embedded Generation	SOUTHERN GAS NETWORKS PLC	439,053	44,355	394,698	No	No
10129395	SYSMET - SYstem Strength Measurement and EvaluaTion	SCOTTISH HYDRO ELECTRIC TRANSMISSION PLC	532,701	54,089	478,612	Yes	Yes

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

10129418	Network Security in a Quantum Future	NATIONAL GRID ELECTRICITY SYSTEM OPERATOR LIMITED	553,628	55,364	498,264	Yes	Yes
10131511	Hydrogen Storage in Aquifers	WALES WEST UTILITIES LIMITED	248,435	24,849	223,586	Yes	No
10127983	GridLink	NORTHERN POWERGRID (NORTHEAST) LIMITED	555,527	55,571	499,956	No	No
10127986	Fractal Flow	NORTHERN POWERGRID (NORTHEAST) LIMITED	570,340	72,455	497,885	Yes	Yes
10128658	Assessment of Superconducting Technologies for Standards Development	National Grid Electricity Transmission PLC	493,127	50,041	443,086	Yes	Yes
10130710	Fuel Cell Renewable Energy Equity (FREE)	NORTHERN POWERGRID LIMITED	525,812	53,577	472,235	Yes	Yes
10131748	Flex Direct	UK POWER NETWORKS	533,674	53,367	480,307	Yes	Yes

		(OPERATIONS) LIMITED					
10131755	Size Wise	UK POWER NETWORKS (OPERATIONS) LIMITED	547,824	48,021	499,803	No	No
10132180	Balancer	UK POWER NETWORKS (OPERATIONS) LIMITED	552,520	55,230	497,290	No	No

6 Expert Assessors Recommendations [Novel approaches to deliver a secure power system]

6.1.1 10126481, LV Optimiser (LVOE)

Submitted Project description

The LVOE Project focuses on innovative LV (Low Voltage) power electronic devices (LV Optimiser, Dynamic Voltage Optimiser and Smart ZigZag) designed to address voltage quality and imbalance, enabling the vast adoption of Low Carbon Technology (LCT) connections within the LV network.

LV protection relies on fuses, which are reliable but lack sensitivity. Using novel AI protection algorithms faults can be separated from LCT which traditional fuses could not. AI algorithms will also plan the location and sizing of LVOE solutions for optimal benefits.

LVOE will provide technical solutions to dynamically operate the network, allowing for the widespread introduction of LCTs.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met

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

Recommendation to the Gas & Electricity Markets Authority
<p>FUND</p> <p>The Expert Assessors agree that the Project has met all the Eligibility Criteria and recommends this Project for funding. The Project addresses the Innovation Challenge because it uses artificial intelligence to reduce future hardware cost which makes it more affordable to integrate renewable energy. It provides an optimiser for low voltage electricity grids that increases the hosting capacity of the grids which reduces the curtailment time of renewable sources without a need to expand the network infrastructures and therefore includes network innovation. The Expert Assessors agree that the Project does not undermine the development of competitive markets. The Project has clear potential to deliver a benefit for electricity consumers through an innovation that optimises the low-voltage distribution grids, improving the hosting capacity of the grid for new sources of renewable energy while reducing the need for costly network expansions. The Project is novel and innovative as it plans to design and develop an artificial intelligence-based fuse which can protect radial LV feeders with high penetrations of low carbon technologies. The Expert Assessors agreed the Project involves a range of stakeholders. The Project is providing value for money and be costed competitively as there is balance of costs between the Project Partners and strong in-kind contributions from the research facilities. The Expert Assessors considered the Project to have a robust methodology that gives confidence it</p>

will progress in a timely manner, but one Expert Assessor felt dependencies between work packages could have been clearer.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

6.1.2 10127303, Equiflex

Submitted Project description

Increasing flexibility is required on energy networks to manage changing demand and generation patterns. This includes reducing power consumption at system peaks (e.g., winter teatimes); and increasing power consumption at certain times to take advantage of renewable energy availability.

Consumers can benefit from providing flexibility, through reductions in their bills and/or receiving payments for providing services to the network. However, the current offerings and their benefits are most easily accessed by more affluent and engaged consumers.

Equiflex aims to remove barriers to accessing these benefits, ensuring no customers are left behind, enabling a just transition to Net Zero.

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

Recommendation to the Gas & Electricity Markets Authority
FUND
<p>The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Project addresses the Innovation Challenge because it seeks to engage vulnerable and disengaged consumers in flexibility services and enables greater rollout of renewable generation whilst mitigating network costs. It has a clearly identified potential to deliver a net benefit to electricity consumers because it provides new opportunities</p>

for customers to benefit from delivering flexibility to the networks, and importantly widens the market for more vulnerable consumers. The Project is considered to involve network innovation because it aims to create new markets, and further develop those that are in an early stage of development. The Project is innovative in its approach to engaging customers that are unlikely to be early adopters of flexibility services. The Project does not undermine the development of competitive markets. Expert Assessors noted that there is a high risk of failure to deliver, particularly if the Project does not engage with disengaged and vulnerable consumers appropriately. The Project includes representation from a range of stakeholders because the Project Partners are wide ranging and experienced, with consumers also included as stakeholders. The Project is providing value for money because it has significant potential to reduce network costs, and increase consumers' share of these savings, by delivering flexibility, all whilst supporting rollout of low carbon technologies. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the plan is clear, highlighting dependencies and milestones.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

6.1.3 10131849, Model for Embedded Generation

Submitted Project description

This Project will leverage disruptive computing technologies (ML and AI) for improving gas system visibility and performance to anticipate demands from embedded generators. It will optimise network operations, reducing the risk of gas shortages and enhancing overall system robustness amidst the transition towards a more flexible and sustainable energy landscape.

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

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 do not recommend this Project for funding. While the Project involves developing a new tool for control room decision-making, the Expert Assessors noted that it failed to justify the innovative aspects of its approach and does not address the aims of the Innovation Challenge. In addition, the Project does not undermine the development of competitive markets. The Expert Assessors stated that the Project provided insufficient evidence supporting the claimed network innovation, overall innovative nature and associated risks, as well as a lack of clarity on how the methodology they had selected will contribute to achieving a Net Zero power system over other methods. The Expert Assessors noted a lack of clear evidence of meaningful engagement with stakeholders, as the Project does not mention the specific organisations involved that are considered important for the Project's success. The Expert Assessors also considered that the Project costs were high relative to the resources allocated in the Project Plan, especially those associated to LCP Delta where there was little justification provided. Given these factors, the Expert Assessors could not confirm that the Project was providing value for money. The Expert Assessors recommended that further evidence and justification are needed to support the Project's claims and demonstrate its overall value to the consumer. The Expert Assessors noted that the Application should have provided evidence of alternative approaches such as improved communication, data migration, and control system analysis across organisations to support the need for additional machine learning capabilities. As a result, the Expert Assessors did not consider this Project to have a robust methodology so that they are capable of progressing in a timely manner.

Decision from the Gas & Electricity Markets Authority**DO NOT FUND**

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 3, 5, 6, 7 and 8. Ofgem considered the Project to not be innovative or risky as a tool for control room decision-making. The Project did not meet Eligibility Criterion 6 because the Project did not identify organisations that are important to the success of the Project. Ofgem agrees with the Expert Assessors that the Project did not provide value for money due to the high costs in relation to the number of resources require to complete the Project.

Recommended Project specific conditions

N/A

6.1.4 10129395, SYSMET - SYstem Strength Measurement and EvaluaTion

Submitted Project description

As the share of inverter-based resources, including renewable generation, increases, lower system strength can lead to uncontrolled voltage changes which can escalate to instability and risk widescale customer disconnections. To secure the Net Zero grid, Network Owners urgently need to monitor system strength conditions to implement the most effective and economic mitigations. At present, neither the requirements for system strength monitoring nor the possible hardware and digital solutions are well defined. The SYSMET Project brings together leading experts to create the pathway for confident implementation of measurement-based tools that provide comprehensive visibility of system strength status for operational decision making.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met

4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the 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 Project addresses the Innovation Challenge because it proposes an innovative approach to improve the management and operating reliability of a Net Zero power system. It includes network innovation by developing system strength measurement solutions which are needed for managing and operating power networks with increased intermittent renewable energy and energy storage sources. The Project has a clearly identified potential to deliver a net benefit to electricity consumers in ensuring the reliable delivery of power generated by intrinsically unstable alternative power sources. It is considered innovative, novel and risky because it sets out to create a standard system strength measurement method based on frequency-dependent impedance measurements. The Project includes participation from a range of stakeholders across electricity networks, academia and industry. The Project does not undermine the development of competitive markets. The Project is providing value for money and be costed competitively because all costings are fully justified within the Application.

The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project plan is clear and well thought out.

Decision from the Gas & Electricity Markets Authority

FUND

Ofgem agree with the Expert Assessors and approve this Project for funding.

Recommended Project specific conditions

N/A

6.1.5 10129418, Network Security in a Quantum Future

Submitted Project description

As part of the UK's critical national infrastructure, the energy system must be secure against malicious cyberattacks. The nature of emerging quantum computing technologies will enable attackers to break encryption that is currently highly secure and open significant new attack vectors.

To ensure resilience, energy networks must therefore consider the quantum threat in their cybersecurity strategies. However, understanding quantum impact requires highly specialist knowledge. This Project addresses this by creating an innovative risk management tool to assess the quantum threat to the energy network, mapping it to a diverse range of energy system assets, and enabling prioritisation of appropriate mitigations.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agree that the Project has met the Eligibility Criteria and recommends this Project for funding. The Project effectively addresses the Innovation Challenge and including network innovation by aiming to quantify quantum computing cyber risks and develop tools to help organisations mitigate future threats to the energy system. It is considered innovative, novel, and risky, being a 'first of its kind' Project that aims to transform quantum computing research into actionable threat intelligence and risk mitigation frameworks. The Project does not undermine the development of competitive markets. The Expert Assessors considered the participation from the range of stakeholders and the collaboration is strengthened by Project Partners with complementary expertise, and there is clear progression from the Discovery Phase which could have applications across multiple different industries. The costs are considered

competitive, and the work packages and deliverables are clearly identified. The work plan is deemed sensible by the Expert Assessors, and the Project offers value for money for the consumers evidenced by the well documented Project management plan which links costs to activity in a realistic and pragmatic way leading to confidence of progressing in a timely manner. Overall, this is a coherent and well-structured bid from a strong consortium of stakeholders.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

During the kick off meeting, the Project must provide to the monitoring officer an outline of a clear dissemination plan.

During the kick off meeting, the Project must provide to the monitoring officer a report on the detail of their approach to open sourcing the modelling techniques they develop which would give further confidence in the Projects' ability to achieve the stated outcomes.

6.1.6 10131511, Hydrogen Storage in Aquifers

Submitted Project description

A shortlist of aquifer structures considered to be potentially viable for large scale hydrogen storage has been identified in a Discovery Phase Project. This Project will further assess the technical and economic feasibility of large-scale gas storage in these structures. It will combine lab-scale experiments, detailed reservoir engineering, engineering studies and planning to inform a techno-economic comparison with a counterfactual of hydrogen storage in a depleted gas field,

and will provide a foundation for a Beta phase in which detailed development plans and a consenting pathway will be developed for shortlisted structures.

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

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agreed all Eligibility Criteria have been met and recommend this Application for funding. The Project addresses the Innovation Challenge by addressing that hydrogen storage is a key deliverable for the energy transition. It has a clearly identified

potential to deliver benefits to consumers by enabling further renewable energy by avoiding curtailment of generation. The Project involves network innovation as it explores a technology with a low Technology Readiness Level in a novel way by using sub-surface aquifers in hydrogen storage. The Project is not considered to undermine competitive markets by as it advances opportunities for aquifer storage rather than using existing pipeline networks, providing another avenue of storage. The Expert Assessors considered the Project to be innovative and risky due to the high level of risk around the suitability of the aquifers and the limited availability of data. Expert Assessors agreed that the Project does not undermine the development of competitive markets. The Expert Assessors raised concerns regarding the lack of renewable generator, Project developer or operator, but noted that through one of the Project Partners, sub-contractors have been brought on board with suitable expertise. The Expert Assessors did state that the Project would benefit from bringing an advisory group/engagement panel with the appropriate expertise. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because of the well-structured work plan and comprehensive risk management strategies. The Project is considered to be value for money and be costed competitively because it has reasonable labour costs from the Project Partners and subcontractors, as well as the benefits of potentially lower costs hydrogen storage at scale.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

While Ofgem recognises the merits of the Project outlined by the Expert Assessors, it disagrees with their assessment that the Project meets Eligibility Criteria 2, 3 and 6. Ofgem therefore does not approve funding for this Project.

The Project lacked strong justification as to why the method of connecting offshore resources to onshore networks would ultimately lead to the net benefit for consumers. Whilst Ofgem acknowledges the risky nature of the Project in relation to the technology readiness level, Ofgem disagrees that the Eligibility Criterion 3 has been met as there was not enough network innovation within an Alpha Phase which suggested suitably improved services by networks. In addition, the lack of clarity on the regulatory role of hydrogen storage, use of consumer resources via the SIF to support further research in this Project may not represent value for

consumers. Furthermore, the Project has not adequately included participation from the full range of whole system stakeholders to ensure appropriate skills and knowledge transfer.

Recommended Project specific conditions

N/A

6.1.7 10127983, GridLink

Submitted Project description

Customers need to connect more LCT technology faster to the LV network while DNO/DSOs ensure they continue to benefit from a stable and reliable electricity supply.

By incorporating cutting-edge, smart switch technology, and machine learning powered targeting and management, GridLink allows the dynamic reconfiguration of the LV network, optimising existing assets to release additional capacity and the ability to better manage energy demands. This will reduce spending on network infrastructure and will deliver a less disruptive Net Zero transition for energy consumers, ultimately leading to lower costs and a greener, more efficient grid for everyone.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met

3: Projects must involve network innovation.	Not Met
4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Not Met
6: Projects must include participation from a range of stakeholders.	Not Met
7: Projects must provide value for money and be costed competitively.	Not Met
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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors agree the Project has not met the Eligibility Criteria and does not recommend this Project for funding. The Expert Assessors agree the Application addresses the aims of the Innovation Challenge because it aims to enhance grid efficiency to release latent network capacity using machine learning techniques. The Expert Assessors suggested the Project does not undermine the development of competitive markets.

This is because the Expert Assessors considered that the methodology, especially regarding artificial intelligence (AI) and machine learning, was unclear and inconsistent. The approach described in the Application differed from what was explained during the interview, indicating a lack of alignment and clarity within the Project team.

The Expert Assessors also consider that the consortium lacks a Project Partner with the necessary expertise in machine learning, which is a central aspect of the Project. The Expert Assessors were not confident that the team had a sufficient understanding of the machine

learning techniques that they planned to use, and they had a lack of confidence in the team's knowledge of their own data and how it would be used to train AI models and therefore considered the application is not innovative.

The Expert Assessors believed there were shortcomings in the Application where the Project had failed to describe the key outputs. The Project identified potential to deliver net benefit to electricity consumers because it will deliver an advanced platform for optimising LV networks to release latent capacity and will make contributions to environmental sustainability with the reduction of CO2 emissions. The Expert Assessors did not consider the Project to be delivering value for money and to be costed competitively because, although the total Project costs and division between Project Partners would appear reasonable, an analysis of the financial breakdown shows that a large proportion of the main Project Partner costs are associated with material and hardware. This is larger than expected for a Project addressing the stated challenge aim to demonstrate greater use of machine learning, AI and quantum computing to increase responsiveness, system visibility, and resilience.

To improve the Project's standing, a more detailed and clear explanation is needed on how the team plans to use machine learning, particularly how it will be applied to solve network-specific issues. The Application would have been strengthened by clearly stating their access to large quantities of data for training purposes and by providing a robust methodology for how this data will be used to develop and refine their machine learning models. Finally, the Expert Assessors felt the Project was missing a Project Partner with specialist data mining or Machine learning expertise to strengthen the consortium, with a detailed description of the key outputs of the Project.

The Expert Assessors recommend that the Project should address these concerns and reapply in future rounds, as they believed there are significant benefits that could be accrued to the networks and to consumers through this work.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 3, 5, 6, 7 and 8. Ofgem considered the methodology unclear

regarding AI and machine learning due to the discrepancies raised by the Expert Assessors during the Application and Interview stages. The Project did not satisfy that it had taken on sufficient expertise in machine learning techniques through stakeholder engagement to bring confidence in progressing the Project. Ofgem agrees with the Expert Assessors that the Project did not provide value for money due to the high costs associated with material and hardware compared to what is expected for addressing the Innovation Challenge.

Recommended Project specific conditions

N/A

6.1.8 10127986, Fractal Flow

Submitted Project description

Fractal Flow (FF) addresses challenges for both the National Grid Electricity System Operator (NGESO) and Distribution Network Operators (DNOs). NGESO currently has limited visibility of aggregated demand forecasts, services availability, and headroom at and below Grid Supply Points (GSPs). As DNOs shift to flexible demand and supply services, FF provides crucial insights to manage network dynamics and avoid conflicts caused by Active Network Management (ANM) systems. By enhancing real-time data access and network visibility with accompanying data analytics, FF aims to better utilise Distributed Energy Resources (DERs), promote low-carbon technologies to reduce CO2 emissions and optimise operations reducing curtailment costs.

Eligibility Criterion

Met / Not Met

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

Recommendation to the 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 Project addresses the Innovation Challenge because it demonstrates potential to enhance real-time data access and network visibility, which are

critical for optimising the use of local Distributed Energy Resources (DERs) and reducing reliance on traditional thermal plants. It has a clearly identified potential to deliver benefits to consumers by lowering network operations costs which will result in lower bills. It would also encourage faster connection and increased use of low carbon technologies, resulting in environmental benefits and additional financial savings. The Expert Assessors agreed that the Project involves network innovation as the real-time analytics engine that would be developed could deliver significant benefits in the Net Zero transition. The Project is considered to be innovative and novel as it takes a comprehensive approach that aims to transform network operations by enhancing visibility and efficiency in a complex, decentralised energy landscape. While the Project includes participation from a range of stakeholders, the Expert Assessors suggested the Application be enhanced by the Project work collaboratively with the Virtual Energy System programme and associated Projects. The Expert Assessors felt the Project overall provided value for money but did express concerns at some of the consultant day-rates put forward. The Expert Assessors agreed the Project had a well thought through and robust methodology.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

At the Project kick off meeting, the Project shall present, to the monitoring officer, a review of elements of the Project that may overlap. This presentation should include suitable mitigations Project to avoid duplication of activity and ensure collaboration.

At the mid-point meeting, the Project must provide evidence of appropriate Project governance within the Energy System Operator (ESO), demonstrating its collaborative work with the Virtual Energy System (VES) programme and the Data Sharing Infrastructure Project.

6.1.9 10128658, Assessment of Superconducting Technologies for Standards Development

Submitted Project description

Superconducting systems have five to ten times higher power density than the equivalent voltage conductor, meaning they deliver higher capacity at lower voltage levels and via a lower number of routes. This will allow faster network capacity increase, delivering time, cost, and carbon savings. Superconducting systems can also deliver a reduction in energy losses to virtually zero and ultimately realise greater environmental and health benefits. This Project aims to investigate these systems in more detail, outlining their operational requirements, technical risks, and next steps in overcoming these barriers for use on the GB grid.

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

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

Recommendation to the Gas & Electricity Markets Authority
<p>FUND</p>
<p>The Expert Assessors agreed all Eligibility Criteria have been met and recommends this Application for funding. The Project addresses the Innovation Challenge by aiming to develop industry standards for High Temperature Superconductor (HTS) Direct Current (DC) cables and overhead lines which are not currently available within the GB energy system. It has a clearly identified potential to deliver benefits to consumers, as on completion the Project will result in a better understanding of the application of HTS technologies which provide a reduction in greenhouse gases, reduction in network costs and access to increased connection of renewables on the network. The Project involves network innovation as it focuses on establishing the technical barriers to the deployment of HTS technologies. The Project will build on the learning and experiences from previous SIF Projects, such as SCADENT and SCOHL. The Project is not considered to undermine competitive markets as it seeks to examine and remove factors that hinder the deployment of HTS technologies within the GB system. The Expert Assessors considered the Project to be innovative and risky due to significant uncertainties in the use of superconductors on the GB system. The Project was noted to have participation from a strong range of stakeholders, with the Expert Assessors pleased to see a Transmission Network Owner, innovators and academics on the Project. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because of the well-structured work plan and comprehensive risk management strategies. Overall, Expert Assessors agreed that the Project provides value for money and has been costed competitively.</p>

Decision from the Gas & Electricity Markets Authority

FUND
Ofgem agree with the Expert Assessors and approve this Project for funding.

Recommended Project specific conditions
N/A

6.1.10 10130710, Fuel Cell Renewable Energy Equity (FREE)

Submitted Project description
<p>The Project will explore how fuel cell micro-Combined Heat and Power (CHP) systems can provide UPS functionality for individual homes as well as support to other nearby homes which depend on direct electrification to provide heat, power and mobility.</p> <p>Fuel cell technology can generate at efficiencies equivalent to the highest efficiency central generation plant even at micro-generation level. Its location within the LV network further ensures that system losses are minimised, by-product heat can be utilised, and local balancing is more easily achieved. This results in increased resilience and lower operating costs for consumers and the energy system.</p>

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met

2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met
4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Met
8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner.	Met

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors agreed all Eligibility Criteria have been met and recommend this Application for funding. The Project addresses the Innovation Challenge by providing valuable insight into the suitability and scale of CHP fuel cell systems into a network scenario. It has a clearly identified potential to deliver benefits to consumers, particularly those dependent on electricity as the single power source for their household. The Project involves network innovation as it explores the potential for mature technologies in a novel configuration to both support system flexibility and address clean heat for vulnerable domestic users. The Project does not undermine the development of competitive markets. The Expert Assessors considered the Project to be innovative and risky due to the issue of integrating CHP fuel cell technology into the network. The Project was noted to have participation from a strong range of stakeholders, with

the Expert Assessors pleased to see a CHP provider would be joining the Project. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because of the well-structured work plan and comprehensive risk management strategies.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

6.1.11 1013174, Flex Direct

Submitted Project description

Energy efficiency retrofits rolled out by Local Authorities (LAs) and Social Housing Providers (SHPs), such as home insulation and storage heating, represent an opportunity to procure flexibility from disadvantaged households that are typically not able to participate in flexibility markets.

Flex Direct aims to develop a new way to procure this type of flexibility by Distribution System Operators (DSOs). The Project is developing novel commercial models and coordinated market approaches to enable LAs and SHPs to operate in direct contract with DSOs. This will incentivise use of energy efficiency in flexibility markets and facilitate participation of 'hard-to-reach' customers at scale.

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

Recommendation to the Gas & Electricity Markets Authority
FUND
<p>The Expert Assessors agree that the Project has met all the Eligibility Criteria and recommends this Project for funding. The Project addresses the Innovation Challenge because it aims to increase access for vulnerable consumers to flexibility markets by improving the business case and commercial models for social housing providers to integrate into DSO flexibility markets. The</p>

Project has a clear potential to deliver benefits to consumers as access to DSO flexibility should stimulate the take up of energy efficiency measures which will reduce energy bills for consumers and provide warmer homes with a consequent impact on wellbeing. The Project involves network innovation as there is no existing market mechanism to monetise flexibility benefits from energy efficiency improvements therefore it was also considered innovative and novel. The Project does not undermine the development of competitive markets. The Project includes participation from a range of stakeholders as the Project Partners have the skills required to deliver the Project. One Expert Assessor noted the Application would have been improved with identification of specific local authorities and social housing providers to engage with - to demonstrate proof of concept. The Project is providing value for money and is costed competitively because the balance between costs of the different partners appears appropriate and well justified. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the work packages are designed to address the key risks in developing and implementing the proposed solution.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

6.1.12 10131755, Size Wise

Submitted Project description

Customers often struggle in understanding the optimal battery size for their home and how best to use them in combination with other Low Carbon Technologies (LCTs). SizeWise will develop a Battery Advice Tool that empowers customers to make informed decisions and maximise their benefits. These benefits could save £3.35 billion annually by 2050 across GB.

To efficiently integrate batteries, DNOs need to understand the impact these systems have on their networks. SizeWise will utilise smart meter data and advanced analytics to gain insights into residential battery usage and identify options for enduring data visibility for DSOs and DNOs.

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding because Eligibility Criterion 6 was not met. The Project met the aims of the Innovation Challenge by providing tools to the DSO to effectively manage peak demand and stability through increased flexibility. The Project was also considered to include network innovation because it will develop a new tool to collect and analyse data on household electricity use and potential flexibility.

Participation from battery installer stakeholder groups, standards authority and the certification body (MCS) were not included in the Project consortium. If the Project aims to influence consumers to make decisions regarding the battery system they will choose, the Expert Assessors considered the missing stakeholders essential to the Project consortium. Consumers go to battery installers for advice on system sizing and installers submit applications for grid connections to the DNO. As a result, the Expert Assessors did not consider this Project to have the appropriate stakeholders.

Despite the missing stakeholders, the Expert Assessors commended the Projects' robust methodology and potential to deliver consumer benefits. The costs were considered competitive against industry norms and for the work described in the Project plan was considered innovative and risky by the Expert Assessors because the uptake of domestic batteries is low, combined with the limited data completeness and accuracy from domestic battery storage. In addition, The Project does not undermine the development of competitive markets.

The Expert Assessors suggested that the Application could have been enhanced by including the additional stakeholders to the consortium, or through rescoping the Project to focus on Low Carbon Technology (LCT) load profiles for network planning. If the Project could be rescoped in this way, then the existing stakeholder group would support the feasibility study to collect and analyse battery consumption profiles for network planning and explore the feasibility for future data access.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded. Ofgem agrees that Eligibility Criterion 6 does not include participation from a wide enough range of stakeholders as battery installer stakeholder groups, standards authority and the certification

body (MCS) (essential to the Project's potential success), were not included in the Project consortium.

Recommended Project specific conditions

N/A

6.1.13 10132180, Balancer

Submitted Project description

Balancer will explore energy equity within the UK's Net Zero transition by supporting communities to participate in flexibility markets and benefit from emerging low carbon technologies. The main objective of Balancer is trialling innovative business models utilising novel front-of-the-meter community batteries strategically placed at the grid-edge.

These batteries can offer various services and benefits to both the network and communities they serve, aspects which have not yet been fully explored. By balancing the battery's functionality into separate parts of automatic grid-support and consumer-oriented features, they can reduce network costs and increase power quality while delivering wider benefits to customers.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met

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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors did not recommend the Project for funding because Eligibility Criterion 2 was not met. The Project met the aims of the Innovation Challenge because it will enable disadvantaged and vulnerable electricity consumers participate in flexibility markets. The Project was not considered by the Expert Assessors to have identified a clear potential to deliver a net benefit to electricity consumers because it did not articulate what proportion of the benefit would be passed to the communities and whether that would exceed their contribution to costs. Additionally, the Project did not quantify all the assumed benefits to consumers in their Cost Benefit Analysis.

The Expert Assessors considered this Project to involve network innovation because it examines the ability of DNO/DSOs to benefit from the management of grid-edge batteries and to deliver the required flexibility and peak shaving services. The Project's innovation is in the new business

model required for ownership and operation of such battery energy storage and flexibility service. The Expert Assessors considered this Project to involve network innovation because it examines the ability of DNO/DSOs to benefit from the management of grid-edge batteries and to deliver the required flexibility and peak shaving services. The Project's innovation is in the new business model required for ownership and operation of such battery energy storage and flexibility service. The Expert Assessors did not consider this Project to be undermining the development of competitive markets because products, processes and services are capabilities not currently available within the UK energy business. Multiple stakeholders including communities, flexibility providers and DNOs were involved in the development of the approach described in the Application. The Expert Assessors considered the Project to be innovative and risky because of the complexity and risk in the approach to integration of front-of-the-meter battery energy storage technology and new business models required for the DNO involvement. The Expert Assessors considered the Project to be delivering value for money because the labour required to deliver the WPs implies a competitive daily rate and all the resources and requirements are within the Team as no subcontractors are required. 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 sequencing is logical, and the Risk Register has captured the key project risks as well as appropriate mitigating measures where necessary. The skills and experience in the team matches the activities planned.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criterion 2. Although the potential to deliver net benefits to electricity consumers through the community co-ownership of battery storage is identified, the Project did not articulate how those benefits will be redistributed to the communities. The Project has multiple focuses, which increases the risk of it being unsuccessful. Additionally, the Project's approach to DNO involvement in the ownership and management of the battery storage system and flexibility service is not clearly articulated.

Recommended Project specific conditions

N/A

7 SIF Alpha Phase – [Enabling power-to-gas to provide system optimisation]- Summary

This section covers the assessment of Round 3 Alpha Phase Applications received into the 'Enabling power-to-gas to provide system optimisation' Innovation Challenge.

For the Alpha Phase, 4 Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 19 June 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 Recommended for funding (Yes/No)
10124573	Exploring Geological Hydrogen Storage Opportunities for the East Midlands (EMStor)	CADENT GAS LIMITED	597,363	97,382	499,981	Yes	Yes
10131782	HyScale LOHC Phase 2b	SOUTHERN GAS NETWORKS PLC	503,300	51,451	451,849	Yes	Yes
10126501	B-Linepack+	National Gas Transmission PLC	583,395	83,489	499,906	No	No

10132445	Alternative Power for Equitable Communities	NORTHERN GAS NETWORKS LIMITED	487,857	51,807	436,050	No	No
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8 Expert Assessors Recommendations [Enabling power-to-gas to provide system optimisation]

8.1.1 10124573, Exploring Geological Hydrogen Storage Opportunities for the East Midlands (EMStor)

Submitted Project description

EMStor Alpha Phase will assess the technical and commercial feasibility of repurposing a depleted onshore hydrocarbon field in the East Midlands to store hydrogen. The Project will also assess how people living in the vicinity of hydrocarbon fields feel about those assets being re-purposed to storing hydrogen. Hydrogen storage will enable accelerated deployment of Cadent's East Coast Hydrogen Pipeline, delivering low carbon hydrogen that enables industry, power and aviation to switch from fossil fuels and decarbonise. The lead network is Cadent, supported by National Gas, and the remaining partners are British Geological Survey, Edinburgh University, Star Energy, Centrica and Uniper.

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

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

Recommendation to the Gas & Electricity Markets Authority	
FUND	
<p>The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Project addresses the Innovation Challenge improving the understanding of business models and technical design for long duration hydrogen storage by providing an alternative large scale hydrogen storage solution in the GB. The Project has a clearly identified potential to deliver benefits to gas network customers following the development of hydrogen pipelines as it looks at how hydrogen storage can be delivered in specific locations in a way that can support regional production, transportation and storage system for hydrogen. This will help with more efficient use of new or repurposed pipelines, therefore reducing the cost of hydrogen rollout. The Project involves network innovation because it is investigating the need for large scale renewable energy storage through the hydrogen vector and novel underground storage for grid connectivity and resilience. However, one Expert Assessor felt the network innovation aspects of the Project could have been developed further in the Application, which raises a risk that the Project will only focus on hydrogen storage, rather than network innovation. The Project is innovative as this type of underground hydrogen storage has not been used in the GB before. Delivering the Project will also involve overcoming significant technical and regulatory risks to ensure it is compatible with wider government support schemes such as the Hydrogen Storage Business Model. The Project does not undermine the development of competitive markets. The Project includes participation from a range of stakeholders because the Project Partners contain the skill sets and expertise needed to ensure that the technological method is viable and that it meets the regulatory and public acceptance</p>	

tests to ensure it can develop further. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the work plan and structure of work packages and Gantt are clear. Expert Assessors agreed that the Project is considered provide value for money and be costed competitively because it aims to deliver an ambitious scope using significant resource at rates that appear highly competitive by industry standards. The project plan provides confidence that it can be delivered, although there is a risk of overrun given the quantity of work that needs to be completed within a short time.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

N/A

8.1.2 10131782, HyScale LOHC Phase 2b

Submitted Project description

The HyScale Liquid Organic Hydrogen Carrier (LOHC) Project aims to demonstrate how an LOHC system can be used for capturing, storing and releasing hydrogen into a gas network, to manage long-duration storage requirements. The use of LOHCs connected to an electrolyser and a hydrogen gas network, will enable it to run flexibly and take advantage of low electricity prices. This will reduce the cost of producing hydrogen for consumers, accelerating the uptake of hydrogen for industrial offtakers, power generation and domestic heating. LOHC systems may play an important role in providing storage flexibility where geological storage is not available.

Eligibility Criterion

Met / Not Met

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

Recommendation to the Gas & Electricity Markets Authority

FUND

The Expert Assessors recommended this Project for funding, and they considered the Project to have met all Eligibility Criteria. The Expert Assessors considered the Project to have addressed the Innovation Challenge as it has the potential to advance Liquid Organic Hydrogen Carrier (LOHC) technology towards a real-life demonstration, supported by a capable consortium to deliver the intended outcomes within the Alpha Phase timeline. The Expert Assessors noted that the ability to store hydrogen as a liquid, bypassing the need for geologically suitable areas, offers supply chain advantages. The Project's potential for scale up, particularly by repurposing existing

infrastructure, presents a significant energy storage opportunity for GB, making it a valuable investment. The Project involves network innovation in its capacity to improve hydrogen storage systems and reduce costs, aligning with the goals of enhancing energy security, supporting a Net Zero carbon economy, and optimising gas networks. The Project is innovative and risky in its integration of LOHC technology with hydrogen generation and gas networks and was considered to have the potential for substantial cost savings and operational efficiencies within the networks. The Project's comprehensive range of stakeholders involved detailed cost breakdown, and robust methodology further justify its suitability for funding, ensuring effective execution and significant benefits for consumers and the broader energy market which demonstrated overall value for money. The Project does not undermine the development of competitive markets. The Expert Assessors noted that there was a lack of evidence in the Application to demonstrate that the Project had completed sufficient engagement with the regulator to secure the necessary exemption from Gas Safety and Management Regulations (GSMR) to complete some of the deliverables in the Project plan. However, at the interview stage the Project provided some reassurance to the Expert Assessors through their experience with similar exemptions that were acquired to deliver previous hydrogen Projects. The Expert Assessors suggested that the Project should be closely monitored in relation to the regulatory changes. This has been suggested as the Application could have provided greater confidence in their ability to obtain the relevant exemptions by stating how they plan to carry out the exemption process and the necessary steps and preparatory work required to obtain it. The Expert Assessors also noted the Application could have been enhanced on the Project's approach to regulatory challenges, the lack of detail in the dissemination plans, and the scaling of hydrogen production, specifically the limitation to 20kg per day.

Decision from the Gas & Electricity Markets Authority

FUND

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

Recommended Project specific conditions

At the kick off meeting, the Project should outline the plans for dissemination which should include wider industry and all relevant stakeholders including how the Project will engage with the Regulator on regulatory changes.

Prior to the kick off meeting, the Project should provide a justification to the monitoring officer of the day rates for certain roles, particularly those associated with ERM, and the time allocated to the Director role and what each of these roles are bringing to the Project.

8.1.3 10126501, B-Linepack+

Submitted Project description

The national gas transmission system currently has the ability to pack additional gas into the pipelines (linepack) in order to provide flexibility and more efficiently manage supply and demand across the network. The amount of energy able to be stored by line packing in the future would decrease with the addition of blended or 100% hydrogen gas. This Project will explore the feasibility of smaller, intermediate scale storage sites (purpose built geological storage solutions with minimal geographical constraints e.g. lined shafts, engineered rock caverns, underground silos) to supplement linepack capacity and provide system flexibility, resilience and network optimisation.

Eligibility Criterion	Met / Not Met
1: Projects must address the Innovation Challenge set by Ofgem.	Met
2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers	Met
3: Projects must involve network innovation.	Met

4: Projects must not undermine the development of competitive markets.	Met
5: Projects must be innovative, novel and/or risky.	Met
6: Projects must include participation from a range of stakeholders.	Met
7: Projects must provide value for money and be costed competitively.	Not Met
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

Recommendation to the Gas & Electricity Markets Authority

DO NOT FUND

The Expert Assessors have not recommended this Project for funding as it has not met all the Eligibility Criteria. Whilst the Expert Assessors agree that the Project met the Innovation Challenge and did offer network innovation because it is examining the potential of the gas transmission network having hydrogen storage capability to enable improved system management and optimisation. In addition, the Application did not undermine the development of competitive markets. The Expert Assessors found that the Project lacked value for money, was not costed competitively because the deliverables and the prospect of achieving them are unclear, additionally the high cost of the Project does not appear to offset the benefits. Expert Assessors agreed the Application lacked adequate justification over its chosen approach over established alternatives. The Expert Assessor raised concerns that there was a lack of transparency regarding SGN's funding contribution and noted that not all Project Partners were contributing monetarily, which led to imbalanced benefits. The Project's methodology was deemed insufficiently robust, with concerns about duplication and inadequate background research on relevant technologies and the broader landscape. The Expert Assessors also noted

that the Project lacks clear impact given Ofgem’s regulatory role on hydrogen storage assets is yet to be clarified.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors that this Project should not be funded because it does not meet Eligibility Criteria 7 and 8. The Project was not competitively costed, and the Application did not provide sufficient justification for the chosen approach over more established alternatives. Moreover, the Expert Assessors highlighted a lack of transparency around SGN's funding contribution, and it was noted that not all Project Partners were contributing financially, resulting in an imbalance of benefits. There were also concerns regarding the robustness of the Project's methodology, with evidence of duplication and inadequate research into relevant technologies and the broader landscape.

Recommended Project specific conditions

N/A

8.1.4 10132445, Alternative Power for Equitable Communities

Submitted Project description

The APEX (Alternative Power for Equitable Communities) Project explores the integration of green hydrogen into Gas Distribution Networks (GDNs) to enhance energy flexibility (benefitting DNOs) and low-emission production. It aims to address the knowledge gap in implementing low-carbon heat, power, and transport alternatives. The Project evaluates three diverse model communities (rural, urban, and industrial) for green hydrogen integration. It seeks to offer more heat, power, and transport alternatives to consumers, ensuring affordability and accessibility, particularly for vulnerable consumers. The Project aligns with the Whole Energy Systems Strategy for future advancements and enhances integration across energy vectors.

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

Recommendation to the Gas & Electricity Markets Authority
DO NOT FUND
The Project is not recommended for funding because that the Application failed to meet Eligibility Criterion 1, 2, 3, 5, 7 and 8. The majority of Expert Assessors concluded that the Project did not adequately address the Innovation Challenge due to insufficient clarity on how it would enhance

grid flexibility or demonstrate technical and social innovation. They found the link between the proposed technological solution and benefits to end consumers to be weak, with the Project lacking detailed financial justification and clarity on quantifying social benefits and therefore would not deliver net benefit to consumers. Although, The Project does not undermine the development of competitive markets, the Application lacked Project sufficient information on its innovative aspects, the exact use cases, or how it would integrate with Network Systems. Additionally, the Project's methodology and planning were deemed insufficiently robust, with unclear technological deployment and vague outcomes, leading to doubts about its value for money and overall feasibility. However, one Expert Assessor did see potential in the Project's use of electrolysers and hydrogen storage in remote communities. Overall, the Project failed to meet key Eligibility Criteria due to the issues above, particularly in terms of cost-effectiveness, innovation, and methodology.

Decision from the Gas & Electricity Markets Authority

DO NOT FUND

Ofgem agrees with the Expert Assessors' recommendation not to fund this Project, as it failed to meet Eligibility Criteria 1, 2, 3, 5, 7, and 8. The Project did not sufficiently address the Innovation Challenge, particularly in terms of enhancing grid flexibility and demonstrating both technical and social innovation. The link between the proposed technological solution and the benefits to end consumers was deemed weak, and the Application lacked detailed financial justification as well as clarity on how to quantify social benefits.

Furthermore, the Project did not provide enough information on its innovative aspects, the specific use cases, or how it would integrate with Network Systems. The methodology and planning were considered insufficiently robust, with unclear details on technological deployment and vague outcomes, raising concerns about the Project's value for money and overall feasibility.

Recommended Project specific conditions

N/A

9 SIF Alpha Phase – [Unlocking system flexibility to electrify heat]- Summary

This section covers the assessment of Round 3 Alpha Phase Applications received into the 'Unlocking system flexibility to electrify heat' Innovation Challenge⁷.

For the Alpha Phase, 1 Application was submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 19 June 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 Recommended for funding (Yes/No)
10130943	CoolDown	ELECTRICITY NORTH WEST LIMITED	558,338	58,450	499,888	Yes	Yes

⁷ <https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-three-innovation-challenges>

10 Expert Assessors Recommendations [Unlocking system flexibility to electrify heat]

10.1.1 10130943, CoolDown

Submitted Project description

As Britain warms due to climate change, electrification of heat will mean increasing customer access to Space Cooling (SC) leading to increased summer peak demands. In current distribution network planning cooling demand is currently poorly accounted for and based on limited, high-level modelling. Additionally, cooling's potential to provide flexibility during periods of network stress has not been considered.

CoolDown will explore the impact of cooling on network capacity by producing improved uptake and demand Projections as well as developing novel commercial arrangements to incentivise and unlock SC flexibility, reducing network reinforcement requirements and optimising value for customers.

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

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

Recommendation to the Gas & Electricity Markets Authority	
FUND	
<p>The Expert Assessors agree that the Project has met the Eligibility Criteria, and that this Application is recommended for funding. The Project addresses the Innovation Challenge because it investigates innovation in the cooling network by bridging the knowledge from heating network. It has a clear potential to deliver benefits to consumers as it could incentivise flexibility around cooling which offers financial benefits to consumers and would reduce the need for network investment costs at the same time. The Project involves network innovation as it is looking at new demand types (cooling) and markets. The Expert Assessors agreed that the Project does not undermine the development of competitive markets. The Expert Assessors noted the outreach to customers and development of commercial models based on customer requirements offers innovation compared to top-down designs for such products. The Project includes participation from a range of stakeholders. The Project has a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project plan is well thought through, logical and clear. Interactions between work packages have been laid out clearly, and risks and mitigations have been thought through and detailed giving confidence that this Project will be delivered in a timely manner. Given the benefits outlined, the Project was considered to be value for money and be costed competitively.</p>	

Decision from the Gas & Electricity Markets Authority	
FUND	

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

Recommended Project specific conditions

N/A