# Strategic Innovation Fund (SIF)

# Cycle 3 Innovation Challenges – Alpha and Beta Phases

# Funding Decision and Summary of Recommendations from Expert Assessors

Date: 22 September 2025

## Contents

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

As the SIF transitions towards RIIO-3, Round 5 Innovation Challenges will span a two-year period. Under the established approach, Innovation Challenges are typically launched annually to address the strategic issues facing the gas and electricity networks.

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

As set out in the SIF Governance Document[1], the SIF is open to the Electricity System Operator, Electricity Transmission and Distribution, Gas Transmission and Gas Distribution licensees.

This report is for the Cycle 3 Alpha and Beta 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 relevant Innovation Challenges and the SIF Governance Document.

[1] The SIF Governance Document can be found here: https://www.ofgem.gov.uk/sites/default/files/2025-04/SIF%20governance%20document%20version%203.1.pdf

The eligible Innovation Challenges for this Cycle are as follows.

Round 4 Alpha Phase[2] of the SIF was launched in September 2024 and focuses on four Innovation Challenges:

1. Faster network development
2. Greater heat flexibility
3. Embedding resilience
4. Accelerating toward net zero energy networks

Round 5 Alpha Phase[3] of the SIF was launched in March 2025 and focuses on seven Innovation Challenges:

1. Advance Energy Transmission and Networks
2. Dynamic Modelling
3. High-Energy Demand Point Integration
4. Consumer-Centric Grid Expansion
5. Enhanced System Visibility and Control
6. Green Gas
7. Whole System Optimisation

Round 3 Beta Phase[4] of the SIF was also launched in September 2024 and focuses on four Innovation Challenges:

1. Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout

[2] Find the four Innovation Challenges launched for Alpha Round 4 here: https://www.ofgem.gov.uk/decision/strategic-innovation-fund-round-four-innovation-challenges
[3] Find the seven Innovation Challenges launched for Alpha Round 5 here: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-5-challenges
[4] Find the four Innovation Challenges launched for Beta Round 3 here: https://www.ofgem.gov.uk/decision/strategic-innovation-fund-round-three-innovation-challenges

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

Round 4 Beta Phase[5] of the SIF was also launched in September 2024 and focuses on four Innovation Challenges:

1. Faster network development
2. Greater heat flexibility
3. Embedding resilience
4. Accelerating toward net zero energy networks

Round 5 Beta Phase[6] of the SIF was launched in March 2025 and focuses on seven Innovation Challenges:

1. Advance energy transmission and networks
2. Dynamic modelling
3. High-energy demand point integration
4. Consumer-centric grid expansion
5. Enhanced system visibility and control
6. Green gas
7. Whole system optimisation

[5] Find the four Innovation Challenges launched for Beta Round 4 here: https://www.ofgem.gov.uk/decision/strategic-innovation-fund-round-four-innovation-challenges
[6] Find the seven Innovation Challenges launched for Beta Round 5 here: https://www.ofgem.gov.uk/publications/strategic-innovation-fund-round-5-challenges

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

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

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

# 1 Cycle 3 Summary

Within each of the Innovation Challenges are specific requirements on scope and Project Partner requirements. Projects submitted to the SIF must meet these specific requirements and must follow the SIF Governance Document.

For this Alpha Phase, Applications were received by 25 June 2025 and must start no earlier than 01 October 2025. They must last up to 8 months in total and must not request funding of more than £500,000.

For this Beta Phase, Applications were received by 25 June 2025 and must start no earlier than 01 October 2025, can last up to five years, and can request SIF Funding greater than £500,000. Prospective Beta applicants seeking more than £10,000,000 were required to provide justification to Innovate UK and Ofgem prior to the Beta Phase Application close.

Applications submitted to the Cycle 3 Alpha and Beta Phases by the 25 June 2025 deadline, and which met the Innovation Challenge-specific requirements, were assessed by Expert Assessors. The Expert Assessors are independent external appointees whose recommendations inform Ofgem's decision-making on the selection of Projects for SIF Funding. The Expert Assessors have relevant expertise and knowledge on the respective Innovation Challenges and/or the energy sector, including for example in policy, regulatory, commercial, financial and technical areas. Consistent with the requirements of the SIF Governance Document, the Expert Assessors have assessed each Application (a) with reference to 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 or Beta Phase, 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, any Project-specific conditions recommended by Expert Assessors, and wider concerns or opportunities identified by the Expert Assessors. For more information on how Projects are assessed by the Expert Assessors, please see Section 2, Assessment Process, below.

This report is a consolidation of the Applications assessed by the Expert Assessors and sets out recommendations from the Expert Assessors to Ofgem on which Projects have met the Eligibility Criteria and should be considered for SIF Funding in the Cycle 3 Alpha and Beta Phases of the SIF. Ofgem, taking into the account the Expert Assessors' assessment and recommendations, performs its own internal review of each Project to reach a decision. Ofgem is the sole decision-maker for the SIF.

## 2 Assessment Process

For the 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 provides a score for each Application and its accompanying appendices, against the questions stipulated in the SIF Governance. These questions tie directly to the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document. Each Expert Assessor includes their assessment of how and why an Application has met or not met each Eligibility Criterion and an overall comment for each Application assessed.
- Expert Assessors' overall recommendations – As part of their assessment, each Expert Assessor provides an overall recommendation on whether the Project should be considered for SIF Funding in the 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. A Project will be recommended for SIF Funding if it has a majority of Expert Assessors recommending it (two of the three Expert Assessors who assessed the Application), if no significant risks are identified which could prevent the Project from progressing, and if the majority of Expert Assessors on each Project consider it to have met each of the Eligibility Criteria outlined in chapter 2 of the SIF Governance Document.
- Recommended Project-specific conditions – Should an Expert Assessor identify an area for additional consideration or clarity for a Project recommended for SIF Funding during the 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 the Project Direction for each of the successful Projects.
- Final decision – The consolidated recommendations report is provided to Ofgem for consideration on which of the Projects for which Applications have been

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

## 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 | International Collaboration | (not scored) |
| 4 | Trusted Research and Innovation | (not scored) |
| 5 | Solution statement and solution focus | Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem. |
| 6 | Innovation justification | Eligibility Criterion 1: Projects must address the Innovation Challenge set by Ofgem.<br><br>Eligibility Criterion 3: Projects must involve network innovation.<br><br>Eligibility Criterion 5: Projects must be innovative, novel or risky. |
| 7 | Impacts and benefits selection | Eligibility Criterion 2: Projects must have clearly identified potential to deliver a net |

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| | | benefit to gas or electricity consumers (whomever is paying for the innovation). |
| 8 | 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). |
| 9 | Team and resources | Eligibility Criterion 6: Projects must include participation from a range of stakeholders. |
| 10 | 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. |
| 11 | Key outputs and dissemination | Eligibility Criterion 4: Projects must not undermine the development of competitive markets. |
| 12 | Intellectual property rights (IPR), procurement and contracting | (not scored) |
| 13 | Commercialisation, route to market and business as usual | Eligibility Criterion 4: Projects must not undermine the development of competitive markets. |
| 14 | Policy, standards and regulations | (not scored) |
| 15 | Consumer impact and engagement | Eligibility Criterion 7: Projects must provide value for money and be costed competitively. |
| 16 | Value for money | Eligibility Criterion 7: Projects must provide value for money and be costed competitively. |
| 17 | Associated network innovation project(s) | (not scored) |

# 3 Alpha Phase

## 3.1 Summary

In the Cycle approach, applicants have multiple opportunities throughout the year to apply to each Phase (Discovery, Alpha and Beta). Therefore, we anticipate times when some Phases and Innovation Challenges will not receive any Applications.

In Cycle 3, for the Round 4 Innovation Challenges, three Projects submitted Alpha Phase Applications into Innovation Challenge 1, 'Faster network development'. One Project submitted an Application into Innovation Challenge 3, 'Embedding resilience'. One Project submitted an Application into Innovation Challenge 4 'Accelerating toward net zero energy networks'

No Alpha Phase Applications were received in this Cycle for Innovation Challenge 2, 'Greater heat flexibility'.

| Innovation Challenge | No. of Applications received |
|---|---|
| Faster network development | 3 |
| Greater heat flexibility | 0 |
| Embedding resilience | 1 |
| Accelerating toward net zero energy networks | 1 |

No Alpha Phase Applications were received in this Cycle for any of the Round 5 Innovation Challenges.

This section covers the assessment of the Cycle 3 Alpha Applications received into the Round 4 Challenges as shown above.

## 3.2 Alpha Phase - Innovation Challenge: Faster network development - Overview of Projects

For the Alpha Phase under this Innovation Challenge, three Applications were submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 25 June 2025 and are listed below.

| Project reference number | Project name | Funding licensee | Total Project costs (£) | Total Project contribution (£) | Total SIF Funding requested (£) | Recommended by Expert Assessors for funding (Yes/No) | Decision by Ofgem for funding (Yes/No) |
|---|---|---|---|---|---|---|---|
| 10166260 | DEsign for Live Line Technology Acceleration (DELLTA) | National Grid Electricity Transmission plc | 509,025 | 50,904 | 458,121 | Yes | Yes |
| 10166254 | FastTrack | Southern Electric Power Distribution plc | 554,998 | 55,500 | 499,498 | Yes | Yes |
| 10166301 | Dynamic, Data Driven Asset Rating (3DAR) | Scottish Hydro Electric Power Distribution plc | 567,506 | 67,726 | 499,780 | Yes | Yes |

## 3.3 Alpha Phase - Innovation Challenge: Faster network development - Expert Assessors' recommendations on Projects

### 3.3.1 Project 10166260 – DEsign for Live Line Technology Acceleration (DELLTA)

| **Submitted Project description** |
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| Alpha phase will expand on learnings from Discovery which reviewed the need of outages to maintain the reliable and resilient networks. Outages cause operational issues and constraints costs which can be lessened by usage of Live Line Working (LLW) enabling better asset health/management.<br><br>Reliability and economic impacts of LLW including different down-selected technology/design/tool/procedures will be explored for both new and existing assets. Framework for LLW will be explored with stakeholder engagement and dead-circuit demonstration.<br><br>Outcomes of DELLTA will investigate LLW-included design for new assets, reduce risks associated with live-circuit demonstration in Beta phase and adaption in T3/T4 for existing assets. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to address the Innovation Challenge by investigating how to design electrical infrastructure to enable Live Line Working (LLW) with greater efficiency and safety, supporting faster network development. LLW has the potential to reduce constraint events, increase system capacity, and provide more flexible, cost-effective maintenance planning. Building |

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| | | on the Discovery Phase, the Project proposes novel approaches, including the use of robotics, to minimise outages and reduce constraint costs. The problem statement is clear, comprehensive, and supported by a strong consortium of Project Partners, giving confidence that the Project directly addresses the Innovation Challenge. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors considered this Project has a clearly defined potential to deliver net benefits to electricity consumers. It will reduce system operating costs, lower constraint and operational costs, and provide direct financial savings. Additional benefits include improvements to environmental sustainability through carbon and $CO_2$ reductions, as well as the development of new products and processes not currently available in the GB electricity sector. The widespread dissemination of findings through industry forums and working groups will further extend these benefits across the sector. Overall, the Project offers clear value to consumers by lowering costs and improving the resilience and efficiency of electricity networks. |
| 3: Projects must involve network innovation. | Met | The Expert Assessors considered this Project to clearly involve network innovation. It will identify new technical specifications and maintenance practices that could enable LLW on overhead lines, including possible changes to tower design for new builds. The proposed application of robotics for complex live maintenance operations is particularly novel, offering the potential to reduce outages and |

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| | | accelerate network development. Overall, the Project introduces innovative approaches to network management that could significantly reduce disruption for consumers. |
| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors considered this Project will not undermine the development of competitive markets. By developing new methods and processes related to LLW not currently available in the GB electricity sector, the Project is expected to strengthen rather than restrict competitive markets. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered this Project to be both innovative and risky. While LLW is established in other countries, it has not been widely adopted in the GB due to regulatory safeguards. The Project is therefore risky as it must demonstrate safe implementation in the GB context to influence regulatory change. It is also innovative in investigating whether overhead lines can be designed for LLW from the outset and in developing robotic technologies to reduce outage durations. Together, these aspects represent a novel and ambitious approach to network development. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include sufficient participation from a wide range of stakeholders. The consortium brings together NGET as transmission owner, the University of Manchester and University of Liverpool for technical expertise, and Frazer-Nash Consultancy for Project management. Additional subcontractors with relevant skills have been included, alongside |

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| | | access to facilities such as the Deeside Centre for Innovation and university High Voltage laboratories. Engagement with DNOs, other GB network operators, and international organisations further strengthens the breadth of participation. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors considered this Project to be value for money and competitively costed. The use of in-kind resources such as university laboratories and NGET facilities. The overall budget is reasonable and the expected consumer benefits from reduced outages and lower operational costs provide value for money. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Expert Assessors considered this Project to have a robust and well-structured methodology. The work plan is comprehensive, with six clearly defined work packages, milestones, and interdependencies. Risks have been identified with appropriate mitigation measures, and none are assessed as high likelihood or impact. The appointment of an independent auditor adds further assurance of delivery quality. While dissemination activities could be expanded further, the overall plan provides confidence that the Project will progress in a timely and effective manner. |

| **Recommendation to the Office of Gas and Electricity Markets (Ofgem)** |
|---|
| **FUND** |
| 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 by investigating how to design electrical infrastructure to enable Live Line Working (LLW) with improved efficiency and safety. This approach supports faster network development, reduces reliance on planned outages, and enhances system resilience. Building on the Discovery Phase, the Project will explore the technical and operational requirements for LLW in GB, with potential applications of robotics for asset maintenance. The intended outcome is to reduce constraint events and increase the overall capacity of existing and future assets.

The Project has clear potential to deliver net benefits for electricity consumers through the reductions in system operating costs, improved environmental sustainability through carbon savings, and enhanced system flexibility. LLW should reduce disruption caused by outages and support more efficient network investment decisions. In addition, Project outputs and findings will be shared widely with the industry through working groups, conferences, and publications, ensuring benefits extend beyond the Project Partners.

The Project is considered innovative because it seeks to develop novel technical specifications, maintenance practices, and design adaptations to enable LLW on overhead lines. This may include redesign of tower structures for new builds and application of robotics to support live maintenance operations. These developments represent a shift in approach to network management, creating the potential for fewer outages and faster deployment of low carbon generation.

The Project does not undermine competitive markets. The outputs will be openly disseminated, enabling all transmission owners, DNOs, and other stakeholders to adopt the findings, supporting rather than restricting market development.

The Project is considered innovative, novel, and risky. While LLW is widely adopted in other countries, regulatory restrictions in the GB have prevented implementation to date. The Project is therefore risky because it must demonstrate safety and effectiveness in the GB context to enable regulatory acceptance. It is innovative because it proposes new specifications for overhead lines, investigates whether LLW

can be incorporated into network design from the outset, and tests novel robotic solutions for asset maintenance.

The Project includes participation from a sufficient range of stakeholders. The consortium includes NGET as transmission owner, the University of Manchester and University of Liverpool providing expertise in high-voltage systems, Frazer-Nash Consultancy providing project management and systems engineering, and subcontractors such as Allied Insulators and PLP (a supplier of electrical equipment) with relevant technical capability. Additional support is provided through NGET's Deeside Centre for Innovation, Eakring Training Centre, and university laboratory facilities. Engagement with DNOs and other stakeholders further strengthens the partnership.

The Project is considered to deliver value for money. The consortium leverages significant in-kind resources, including specialist expertise and facilities that are not easily costed. The potential consumer savings from reduced outage costs and more efficient network operation provide a strong value for money.

The Project has a robust methodology with a comprehensive plan, clear milestones, and well-defined responsibilities across six work packages. The interdependencies are mapped, and risks are identified with mitigating actions in place. An independent audit process has also been proposed to ensure quality assurance. The methodology provides confidence that the Project will progress in a timely manner and deliver its outputs effectively.

| **Decision from the Office of Gas and Electricity Markets (Ofgem)** |
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| **FUND** |
| Ofgem agrees with the Expert Assessors and approves this Project for funding. |

| **Recommended Project-specific conditions** |
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| Prior to the Kick-off meeting, the Funding Party must provide the Monitoring Officer with a dissemination strategy setting out how Project learning will be shared and how dissemination activities could be expanded further to maximise sector impact. |

### 3.3.2 Project 10166254 – FastTrack

| **Submitted Project description** |
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| The distribution connections queue is c.180GW and growing, driven by electrification of demand and growth in low-carbon generation and storage. Assessing overall network impacts from this ever-evolving connections stack is challenging, complicating networks' assessment of available headroom and future investment needs.<br><br>FastTrack, an Artificial Intelligence solution, simulates the impact of connection requests from primary substations to the Grid Supply Point. By analysing network capacity, existing load, connection data, and external drivers, it provides a consolidated view of future demand. This supports system planners in making informed decisions on investments, access products, and interventions to accelerate delivery and optimise capacity use. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to effectively address the Innovation Challenge by proposing an AI-driven solution to improve the assessment and optimisation of energy network connections. It directly aligns with the Innovation Challenge by introducing novel methods to accelerate and enhance decision-making on connection requests, including probabilistic forecasting, simulating the impact of requests up to |

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| | | Grid Supply Point level, and pre-assessing reinforcement options. This approach supports system planners to understand reinforcement needs and manage risks, enabling faster and more efficient use of existing assets. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors considered this Project to have a clearly defined potential to deliver net benefits to electricity consumers. The proposed solution aims to reduce "Time to Quote" and "Time to Connect" for network customers, cutting network operating costs and accelerating connection revenues. Applicants have provided a good Cost Benefit Analysis with realistic assumptions for this Alpha Phase, demonstrating that even relatively small improvements in network efficiency could deliver significant benefits to consumers by reducing costs and improving service. |
| 3: Projects must involve network innovation. | Met | The Expert Assessors considered this Project to clearly involve network innovation. By applying AI to dynamically model and update the cumulative impact of connection requests, it introduces a new data-driven approach that moves beyond current practices. This represents a significant innovation in managing distribution network development and supporting more efficient planning decisions. |
| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors considered this Project will not undermine the development of competitive markets. This approach enables broad sharing across the sector and supports potential roll-out |

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| | | to other DNOs, helping to promote competition rather than limit it.. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered this Project to be innovative, novel, and risky. It combines probabilistic forecasting and AI modelling of connection requests, addressing a new use case not covered by existing R&D initiatives. The risks stem from its low developmental status status and the need to validate the accuracy of the model outputs. However, the Alpha Phase provides an appropriate opportunity to test and de-risk the approach, while its novelty offers a potentially transformative capability for the sector. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include a strong partnership between SSEN and Faculty, bringing essential expertise in network operations and AI application. This provides the technical foundation for successful delivery. For a Project aiming at widespread industry adoption, engagement with additional DNOs and external stakeholders during Alpha would be beneficial to diversify input and build broader early support. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors considered this Project to be competitively costed, with the budget and distribution of resources appropriate for the scope of work. Most costs are assigned to technical delivery, which is suitable at this stage. Labour rates are within industry standards, and the CBA provides a realistic assessment of potential benefits., The overall balance of |

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| | | costs and benefits indicates good value for money. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Expert Assessors considered this Project to have a robust and well-structured methodology. The work plan sets out clear work packages, milestones, and interdependencies, supported by governance and proactive risk management. Supporting documents, including a Gantt chart and Project plan, further reinforce confidence that the Project is capable of progressing in a timely and effective manner toward the Beta Phase. |

| **Recommendation to the Office of Gas and Electricity Markets (Ofgem)** |
|---|
| **FUND** |
| The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding.<br><br>The Project tackles the Innovation Challenge by using artificial intelligence to improve how energy network connection requests are assessed and managed. By applying advanced modelling and probabilistic forecasting, it will give system planners clearer visibility of likely outcomes and reinforcement needs. This represents a step forward in enabling quicker, more efficient connections and making better use of existing capacity.<br><br>The Project clearly identified potential to deliver a net benefit for electricity consumers. By reducing the time it takes to quote and connect, the Project has the potential to cut operating costs and bring forward revenues for those seeking connections. These gains are supported by a well-prepared cost–benefit analysis that demonstrates tangible financial and service improvements if the approach proves successful. |

The Project introduces new techniques that go beyond current practice. The use of AI to continuously update the impacts of connection requests is a significant innovation, offering tools that can support more efficient planning and decision-making across networks.

The Project does not undermine the development of competitive markets. On the contrary, findings will be openly shared, , with opportunities for adoption across other DNOs. This approach supports industry-wide learning and avoids restricting market activity.

The Project is considered to be innovative and risky. The concept is at an early stage of development and there is uncertainty over how accurate the model outputs will be. However, these risks are appropriate for an Alpha Project, and this stage provides the right environment to test and validate the approach before scaling further.

The Project includes participation from a sufficient range of stakeholders, combining SSEN's operational expertise with Faculty's AI knowledge. This partnership is credible and capable of delivering the technical outputs. Additional engagement with other stakeholders during Alpha will help strengthen industry confidence and lay the foundations for broader adoption.

The Project provides value for money and is costed competitively and largely directed toward technical development, with costs in line with industry standards. The scale of potential consumer benefit provides good justification for the level of investment requested.

The Project is well thought through and has a robust methodology and is capable of progressing in a timely manner, with clear work packages, milestones, and a comprehensive risk register. Governance arrangements are in place, and documentation such as the Gantt chart demonstrates a clear and achievable pathway. Overall, the methodology provides confidence that the Project can progress in line with expectations and deliver meaningful outputs at this stage.

| Decision from the Office of Gas and Electricity Markets (Ofgem) |
|---|
| **FUND** |
| Ofgem agrees with the Expert Assessors and approves this Project for funding. |

| Recommended Project-specific conditions |
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| Prior to the Kick-off meeting, the Funding Party must provide the Monitoring Officer with an engagement strategy with diverse DNO stakeholders to improve wider adoption.<br><br>Prior to the Kick-off meeting, the Funding Party must provide the Monitoring Officer with an engagement strategy with Local Area Energy Plan stakeholders to enable better visualisation of demand development and change. |

### 3.3.3 Project 10166301 – Dynamic, Data Driven Asset Rating (3DAR)

| Submitted Project description |
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| As electricity networks face growing pressure for connections, the need for smarter, faster, and more flexible network solutions becomes essential. Dynamic Rating (DR) allows electricity network assets, particularly overhead lines, to operate closer to their real-time thermal capacity by accounting for environmental conditions. Dynamic, Data Driven Asset Rating (3DAR) will identify those circuits where DR could be deployed to release additional headroom, overlay future constraints with mapped additional capacity from DR to facilitate assessment at scale. 3DAR will allow DR to be scaled at distribution level, productising the solution to embed it within processes and accelerate network connections |

| Eligibility Criteria met or not met – Expert Assessors' evaluation | | Additional justification |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to address the Innovation Challenge by extending the application of Dynamic Rating (DR) techniques from |

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|---|---|---|
| | | transmission to distribution networks. By using weather and climate data to identify overhead lines where DR could safely release additional headroom, the Project offers a digital innovation that could increase the viability of DR at lower voltages. This provides an alternative to costly reinforcement or procurement of flexibility services and directly aligns with the challenge of unlocking capacity from existing assets. The problem statement is clear, concise and well justified. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors considered this Project to have a clearly defined potential to deliver net benefits to electricity consumers. It could defer or avoid costly network reinforcement, reduce reliance on flexibility services, and accelerate the connection of renewables, resulting in faster deployment of low-carbon generation.. While there are some inconsistencies between the qualitative description of benefits and the CBA, particularly in how environmental benefits are quantified, the thorough explanation of assumptions and methodologies suggests improvements could be made at Alpha. The overall the benefit case is strong. |
| 3: Projects must involve network innovation. | Met | The Expert Assessors considered this Project to involve clear network innovation. It aims to develop a digital tool to identify where Dynamic Rating can be most effectively deployed on 33kV distribution networks, covering a wider range of assets than previous applications. By combining advanced weather modelling with asset data, the tool will allow DNOs to operate closer to |

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| | | the physical limits of their networks while remaining compliant with safety regulations. This represents a significant step forward in how DR techniques are applied and scaled. |
| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors considered this Project will not undermine competitive markets. The 3DAR tool is expected to stimulate rather than restrict market activity by providing a new product that can be rolled out across GB DNOs. The approach is transparent, with no elements that would prevent other operators from procuring or developing similar solutions. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered this Project to be innovative, novel, and appropriately risky. It extends DR methods from transmission to distribution networks at scale, introduces advanced modelling using real-time weather and climate data, and incorporates a new "sheltering index" concept. Risks include ensuring operational safety, the complexity of interpreting weather data, and uncertainty around sensor-based or sensor-less monitoring approaches. These challenges are significant, but they are consistent with an Alpha Phase innovation and build logically on prior Projects such as Revisting and Evaluating Environmental Inputs on Line Ratings (REVISE), Predict 4 Resilience (P4R), and the Discovery Phase of the Project. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include a sufficient range of stakeholders. The consortium brings together SSEN as the DNO, Imperial College London providing academic |

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| | | expertise, and Sia Partners contributing innovation and consultancy experience. Two key new Project Partners have been added compared to Discovery, broadening the team. While the absence of a confirmed specialist OHL engineering consultancy Project Partner is noted as a weakness, overall the partnership demonstrates a good balance of business, research, and academic skills appropriate to the scope of work. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors considered this Project to be costed competitively. The budget is proportionate to the scope, and rates are broadly within industry norms. The Project will also leverage facilities and expertise from Imperial College, providing added value. However, some inconsistencies were identified in Project Partner budgets, such as the allocation of Imperial's resource and subcontracted engineering costs, and the lack of clarity on the maturity of the tool at Alpha increases risk. These factors reduce confidence slightly but do not undermine the overall value-for-money case. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Expert Assessors considered this Project to have a robust methodology and well-structured plan. Work packages, milestones, and resource requirements are clear and interdependent, and the risk register identifies key risks with appropriate mitigation. While some inconsistencies in the templates and the absence of a confirmed overhead line consultancy Project Partner could affect timely delivery of certain work packages, these issues are manageable at Alpha Phase. On balance, the methodology |

| | | |
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| | | provides confidence that the Project can progress effectively and deliver its intended outputs on time. |

| **Recommendation to the Office of Gas and Electricity Markets (Ofgem)** |
|---|
| **FUND** |
| The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding.<br><br>The Project tackles the Innovation Challenge by extending the use of Dynamic Rating methods from transmission to distribution networks, unlocking additional capacity by drawing on weather and climate data to identify where overhead lines can safely carry more load. This represents a valuable opportunity to improve utilisation of existing assets and reduce reliance on costly reinforcement or flexibility procurement. The problem the Project seeks to address is well defined and timely, given the pressures on the network from the growth of renewable generation.<br><br>The benefits to consumers are expected to be significant. By deferring reinforcement, reducing operational costs, and accelerating the connection of renewable energy, greater system resilience, and faster decarbonisation. While there are some inconsistencies in how the benefits have been quantified, the overall case is adequate, and the Project is expected to deliver meaningful consumer value if successful.<br><br>The Project involves network innovation by applying Dynamic Rating at scale on 33kV distribution networks. It will combine advanced weather modelling with asset data to create a digital planning tool that can be used both in investment decisions and in control room operations. This is a novel approach for GB DNOs, though it does carry risk, particularly in relation to ensuring compliance with safety regulations and validating the accuracy of the modelling outputs. These risks are appropriate for an Alpha Phase. |

The Project includes participation from a sufficient range of stakeholders. It brings together SSEN, academic Project Partners, and innovation specialists, building on experience from earlier projects. The addition of further Project Partner, Imperial College London, strengthens capability, though securing a specialist OHL consultancy will be important for the success of later work packages.

The Project provides value for money and is costed competitively to the scope and in line with industry expectations, with Project Partner contributions exceeding the minimum requirement. Although some details of Project Partner roles and resource allocations could be clearer, the cost case overall is competitive and justified by the potential benefits.

The Project provides a robust methodology which shows they are capable of progressing in a timely manner, with defined milestones, interdependencies, and risk management processes that provide confidence it will progress on schedule. While there are some minor inconsistencies in the documentation, they do not undermine the strength of the overall plan.

| **Decision from the Office of Gas and Electricity Markets (Ofgem)** |
| --- |
| **FUND** |
| Ofgem agrees with the Expert Assessors and approves this Project for funding. |

| **Recommended Project-specific conditions** |
| --- |
| Prior to the Kick-off meeting, the Funding Party must provide the Monitoring Officer with a written explanation on how the models and assumptions will be validated and how success will be represented. During the mid-point and End of Phase meetings, the Funding Party will provide updates on any changes made throughout the Alpha Phase.<br><br>Prior to the End of Phase meeting, the Funding Party must provide the Monitoring Officer with how improvements have been made to the CBA, particularly around |

how environmental benefits have been quantified, and an explanation of assumptions and methodologies.

Prior to the Kick-off meeting, the Funding Party must provide the Monitoring Officer with a revised breakdown of Project Partner budgets, clarifying resource allocations and subcontracted engineering costs, together with a statement on the maturity of the tool to address identified risks.

## 3.4 Alpha Phase - Innovation Challenge: Embedding resilience - Overview of Projects

For the Alpha Phase under this Innovation Challenge, one Application was submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 25 June 2025 and is listed below.

| Project reference number | Project name | Funding licensee | Total Project costs (£) | Total Project contribution (£) | Total SIF Funding requested (£) | Recommended by Expert Assessors for funding (Yes/No) | Decision by Ofgem for funding (Yes/No) |
|---|---|---|---|---|---|---|---|
| 10168054 | Gas Network Evolution Simulator (GNES) | Northern Gas Networks Limited | 501,431 | 62,705 | 438,726 | Yes | Yes |

## 3.5 Alpha Phase - Innovation Challenge: Embedding resilience - Expert Assessors' recommendations on Projects

### 3.5.1 Project 10168054 – Gas Network Evolution Simulator (GNES)

| **Submitted Project description** |
|---|
| GNES (Gas Network Evolution Simulator) uses Agent Based Modelling to simulate how people, policies, and infrastructure interact as the UK transitions away from natural gas. By reflecting real-world behaviours and decisions, it helps energy networks, policymakers, and communities explore fair, cost-effective pathways to decarbonisation. GNES reveals how transition choices impact different households and regions, ensuring no one is left behind. Developed by the Centre for Energy Equality with industry and public partners, GNES supports a whole- system approach to planning a just and resilient energy future that works for everyone, not just those able to move first. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to have addressed the Innovation Challenge because it aims to develop a scenario modelling tool using Agent Based Modelling (ABM) which would inform more equitable, coordinated and cross-vector planning for system transition away from natural gas. Successful rollout of the Project will provide a valuable insight into the potential for the transition of the gas network to be planned in a way that reduces the impact to vulnerable consumers. |
| 2: Projects must have clearly identified | Met | The Expert Assessors considered this Project to have clearly identified |

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| potential to deliver a net benefit to gas or electricity consumers | | potential to deliver a net benefit to gas consumers because successful rollout of GNES will support energy networks, planners and other public bodies in avoiding unintended or counterproductive outcomes from investment and gas network decommissioning decisions, while enabling the testing of customer responses to various policy options. The potential benefits include reduced network investment, fairer cost recovery and consumer protection strategies, more coordinated heat decarbonisation efforts, and more public confidence in, and support for, clean energy transition for heating. |
| 3: Projects must involve network innovation. | Met | The Expert Assessors considered this Project to involve network innovation because it prioritises insights into the gas network transition from the perspective of consumer impact rather than focusing solely on network efficiency. Additionally, it addresses a significant shared challenge of heat transition across gas networks and demonstrates innovative coordination with NESO, enhancing its strategic value and collaborative approach. |
| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors did not consider this Project to be undermining the development of competitive markets because the ABM tool will be owned and maintained by the not-for-profit social enterprise, Centre for Energy Equality. The Project's intention to make the ABM tool available to all sectors on a licensing |

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| | | basis, with accompanying access to CEE services is noted.<br><br>One Expert Assessor raised concerns that the proposed commercial model risks restricting participation by other market services suppliers through a potential lack of detailed access to software and methods for data processing to conduct the ABM. This will be monitored through a special condition.. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered the Project to be innovative and risky because the GNES tool represents a step change in planning capabilities, enabling a more equitable, cost-effective, and responsive transition away from methane gas for heating. The potential adoption by NESO adds a novel dimension to the Project's strategic impact. The Project is risky due to uncertainties around data availability, potential challenges in stakeholder engagement, and the possibility that the modelling may be overly complex for end users. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met because the consortium includes three gas distribution networks and NESO, representing key stakeholders. The Centre for Energy Equality, which leads on agent-based modelling, is well-aligned with LCP Delta's expertise in energy markets and commercialisation. Additionally, the consortium has outlined |

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| | | plans to engage a broader range of stakeholders such as Wales & West Utilities, DNOs, NESO, local authorities, and consumer organisations through co-development of GNES use cases and decision-making scenarios. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors considered the Project to be delivering value for money and be costed competitively because Project costs appear reasonable and appropriate to the programme of work, component tasks and planned outputs compared to projected benefit.<br><br>The Expert Assessors noted that the value is placed somewhat at risk owing to the Project's lack of specificity and clarity over their implementation plan during the Alpha Phase. They recommend the Project, and the value it delivers for consumers' money, will benefit from greater detail being provided at the kick-off meeting regarding how the Project Partners will allocate effort and resources throughout the Project.<br><br>The Expert Assessors overall agree the Project has met the Eligibility Criterion and have recommended special conditions to monitor the concern outlined. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Expert Assessors considered the Project to have a robust methodology which gives confidence to the Expert Assessors that it will be capable of progressing in a timely manner because the Application provides a thorough, systematic and well-structured project plan, with adequate detail of each |

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| | | component of the development process. There is a clear division of tasks and responsibilities between Project Partners, and work package inter-dependencies, and their management, are explained.<br><br>The Expert Assessors raised concern over the lack of task outlining process, roles and responsibilities for model validation and the ambiguity over the Project's output at the end of Alpha Phase. This will be monitored through delivery and special conditions have been added to reflect this. Ultimately the Expert Assessors considered the Project to have met the Eligibility Criterion. |

| **Recommendation to the Office of Gas and Electricity Markets** |
|---|
| **FUND** |
| The Expert Assessors agree that the Project has met all the Eligibility Criteria and recommends this Project for funding.<br><br>The Project directly addresses the Innovation Challenge by seeking to clarify the role of gas networks in the transition to net zero from a whole system perspective. By applying agent-based modelling, it will capture the social, economic, and behavioural dynamics that influence how households, businesses, and policymakers respond to different scenarios. This approach goes beyond current technical-economic models, offering a richer and more realistic basis for planning the transition away from gas.<br><br>The Project has clearly identified a net benefit for gas consumers. The Project will help decision-makers avoid poorly targeted or inequitable investment strategies, reduce the likelihood of stranded assets, and design policies that protect vulnerable groups. Consumers stand to benefit from fairer cost allocation, more affordable low-carbon heat, and greater confidence in the overall transition. |

The Project is innovative because it introduces new modelling techniques to the gas sector and applies them in a cross-vector context. This will provide insights into how heat, electricity, and societal choices interact, helping to coordinate planning and avoid fragmented system change. While the Project carries some risks, including the complexity of the modelling and dependence on effective collaboration between Project Partners, these risks are proportionate to the scale of the challenge and appropriate for an Alpha Project.

The Project includes participation from a sufficient range of stakeholders. It combines the Centre for Energy Equality's expertise in agent-based modelling with LCP Delta's experience in energy markets and commercialisation, supported by engagement from network operators and wider stakeholders. Plans to broaden participation in Alpha, including with NESO and local authorities, will strengthen the evidence base and improve the prospects for adoption.

The Project is competitively costed, and the budget is proportionate to the planned activities. While there is some uncertainty over the scale of benefits that can be realised, the potential payback is significant if the modelling helps steer an orderly, fair, and coordinated gas system transition.

The Project methodology is clear, systematic, and supported by a well-structured plan. Work packages and milestones are realistic, interdependencies have been identified, and a comprehensive risk register is in place. Collectively, these provide confidence that the work can be delivered to time and scope, with outputs that will be of value to networks and policymakers.

| **Decision from the Office of Gas and Electricity Markets** |
| --- |
| **FUND** |
| Ofgem agrees with the Expert Assessors and approves this Project for funding. |

| **Recommended Project-specific conditions** |
| --- |

Prior to the Project kick off meeting, the Funding Party must provide the Monitoring Officer with a clear outline of the process, roles and responsibilities for ABM model validation in the Project Plan to a greater level of detail.

Prior to the Kick-off meeting, the Funding Party must provide to the Monitoring Officer clarification on what the Project's output will be at the end of Alpha Phase and how they plan to scale up the GNES solution at national level.

Prior to the Kick-off meeting, the Funding Party must provide to the Monitoring Officer commitment that the ABM tool and any data it uses will be subject to Open Data Triage in accordance with Data Best Practice.

## 3.6 Alpha Phase - Innovation Challenge: Accelerating toward net zero energy networks - Overview of Projects

For the Alpha Phase under this Innovation Challenge, one Application was submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 25 June 2025 and is listed below.

| Project reference number | Project name | Funding licensee | Total Project costs (£) | Total Project contribution (£) | Total SIF Funding requested (£) | Recommended by Expert Assessors for funding (Yes/No) | Decision by Ofgem for funding (Yes/No) |
|---|---|---|---|---|---|---|---|
| 10166501 | I-LAD (Innovating Losses Analysis and Detection) | Southern Electric Power Distribution plc | 587,106 | 87,794 | 499,312 | Yes | Yes |

## 3.7 Alpha Phase - Innovation Challenge: Accelerating toward net zero energy networks - Expert Assessors' recommendations on Projects

### 3.7.1 Project 10166501– I-LAD (Innovating Losses Analysis and Detection)

| **Submitted Project description** |
|---|
| Non-Technical Losses (NTL) are electricity losses resulting from theft, unknown unmetered supplies, or metering inaccuracies.<br><br>They directly impact on both customers' bills and our carbon footprint. Losses due to theft also often lead to serious safety incidents. Current methods of identifying and monitoring losses are outdated and inefficient.<br><br>I-LAD Service will address this through:<br>**Smart Detection**: Innovative AI-driven platform combining network, supplier, and socio-economic data for accurate NTL identification.<br>**Targeted Action**: Decision-making support model for identifying fair, cost-effective interventions with stakeholder input.<br>**Trusted Governance**: transparent data sharing under a robust, GDPR-compliant framework, delivering Fair, Secure and Accurate NTL insight generation. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered that the Project addresses the Innovation Challenge by targeting the reduction of non-technical losses (NTLs) using advanced analytics and innovative methodologies. By identifying and addressing inefficiencies such as theft and settlement issues, it has clear potential to improve network efficiency, reduce system costs, and deliver |

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| | | financial, environmental, and societal benefits. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors found the Project to have a strong potential to deliver net benefits to electricity consumers by reducing non-technical losses. Benefits include avoided lost revenue, lower overall system costs, improved safety in cases of theft, and wider customer benefits through fairer allocation of costs. The use of AI and data-driven methods creates a credible case for long-term consumer value. |
| 3: Projects must involve network innovation. | Met | The Project demonstrates network innovation by combining network, metering, supplier, and socio-economic data to identify non-technical losses. This integrated approach introduces novel frameworks for data sharing and decision-making, supporting improved network efficiency and the creation of capacity for new loads. Together, these elements represent a significant step forward in innovation. |
| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors agreed that the Project does not undermine competitive markets. It is designed to be open and accessible across networks, with governance frameworks developed to ensure fair participation. Outputs will enhance, rather than replace, existing systems, supporting wider adoption and fair market operation. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Project is considered both innovative and risky due to its application of AI and advanced analytics across multiple datasets to detect NTLs, which are |

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| | | inherently difficult to identify. While there are uncertainties around data integration and the accuracy of outputs, the novelty of the approach and the potential impact justify the associated risks. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Project includes a broad and sufficient range of stakeholders, bringing together DNOs, industrial data specialists, academics, and other relevant external stakeholders. Each Project Partner provides complementary expertise across technical, operational, and regulatory areas. Further expansion of stakeholder involvement during delivery, particularly through user groups, would strengthen the Project even further. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors judged the Project to be competitively costed, with reasonable overall costs and contributions above the minimum requirement. The budget is proportionate to scope and complexity, targeting high-value outcomes from NTL reduction with modest investment. Although greater explanation of alternatives would strengthen the case, the potential benefits clearly justify the expenditure. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Project has a well-developed and robust methodology. The plan is clear, with structured work packages, defined milestones, and interdependencies identified. Risks have been considered, and responsibilities are clearly assigned. Together, these provide confidence that |

| | | |
|---|---|---|
| | | the Project can be delivered successfully and on time. |

| Recommendation to the Office of Gas and Electricity Markets |
|---|
| **FUND** |
| The Expert Assessors agree that the Project has met all the Eligibility Criteria and recommends this Project for funding.<br><br>The Project addresses the relevant Innovation Challenge, demonstrating potential to improve network efficiency by tackling non-technical losses through novel and innovative techniques.<br><br>The Project to have clearly identified the potential to deliver a net benefit to electricity consumers. The Project could lead to significant reductions in non-technical losses, thereby lowering system costs. In addition to the financial benefits, the Expert Assessors highlighted the considerable scale of non-financial benefits, including improved safety outcomes through the reduction of fire, electrocution, and other related risks.<br><br>The Project involves network innovation, as it proposes a new approach to data retrieval and management, drawing on multiple sources including network, supplier, and socio-economic data. This data-driven approach is expected to support the development of new data sharing frameworks and governance models that enhance network and system operation.<br><br>The Project is not considered to be undermining the development of competitive markets. The Project's focus on producing widely accessible insights and governance frameworks supports transparency and enables adoption by all networks and a broad range of stakeholders.<br><br>The Project is considered to be both innovative and risky, applying advanced AI and analytics across multiple datasets in a novel context. The Project also seeks to address the complex challenge of coordinating stakeholder actions to reduce non- |

technical losses, which the Expert Assessors viewed as further evidence of the Project's ambition and innovation.

The Project to include participation from a sufficient and appropriate range of stakeholders. The Project brings together the necessary delivery partners and has secured committed support from a wide variety of external stakeholders. The Expert Assessors emphasised the central role of the Project's working group in convening relevant stakeholders to support the development and testing of the solution. They also noted that considerations around data security and governance are being appropriately managed, with clear attention to how access to data and outputs will be handled across stakeholder groups.

The Project is considered to provide value for money and to be costed competitively. The budget is proportionate to the scope and complexity of the proposed work, and the Project has strong potential to deliver benefits. The Expert Assessors underlined the importance of developing clear governance structures to ensure accountability and effective action ownership in delivering reductions in non-technical losses.

The Expert Assessors found the Project to have a robust methodology, providing confidence in its ability to progress in a timely manner. The Project plan is well structured, with clearly defined work packages, interdependencies, and responsibilities across the consortium

| **Decision from the Office of Gas and Electricity Markets** |
| --- |
| **FUND** |
| Ofgem agrees with the Expert Assessors and approves this Project for funding. |

| **Recommended Project-specific conditions** |
| --- |
| Prior to the End of Phase meeting the Funding Party must provide the Monitoring Officer with a report on model training progress and the impact this has on scalability of the solution. |

Prior to the End of Phase meeting, the Funding Party must provide the Monitoring Officer with a report on the data sharing strategy and governance structure approach, in particular considering impact on external data sharing.

Prior to the End of Phase meeting, the Funding Party must provide the Monitoring Officer with a report on how the Project is expected to perform relative to other relevant Projects looking at addressing electricity losses.

# 4 Beta Phase

## 4.1 Summary

As mentioned earlier, in the Cycle approach applicants have multiple opportunities throughout the year to apply to each Phase (Discovery, Alpha and Beta). Therefore, we anticipate times when some Phases and Innovation Challenges will not receive any Applications.

This section covers Cycle 3, Round 3, 4 and 5 Beta Phase Applications.

**Round 3 Beta**

The Round 3 Beta Innovation Challenges are:

Innovation Challenge 1 - Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout

Innovation Challenge 2 - Novel technical, process and market approaches to deliver an equitable and secure net zero power system

Innovation Challenge 3 - Unlocking energy system flexibility to accelerate electrification of heat

Innovation Challenge 4 - Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation

**Round 4 Beta**

The Round 4 Beta Innovation Challenges are:

Innovation Challenge 1 – Faster network development

Innovation Challenge 2 – Greater heat flexibility

Innovation Challenge 3 – Embedding resilience

Innovation Challenge 4 – Accelerating toward net zero energy networks

**Round 5 Beta**

The Round 5 Beta Innovation Challenges are:

Innovation Challenge 1 – Advanced energy transmission and networks

Innovation Challenge 2 – Dynamic modelling

Innovation Challenge 3 – High-energy demand point integration

Innovation Challenge 4 – Consumer-centric grid expansion

Innovation Challenge 5 – Enhanced system visibility and control

Innovation Challenge 6 – Green gas

Innovation Challenge 7 – Whole system optimisation

In this Cycle, one Project submitted a Beta Phase Application into Round 3 Innovation Challenge 2, 'Novel technical, process and market approaches to deliver an equitable and secure net zero power system'. One Project submitted a Beta Application into Round 3 Innovation Challenge 3, 'Unlocking energy system flexibility to accelerate electrification of heat'. One Project submitted a Beta Application into Round 3 Innovation Challenge 4, 'Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation'.

| Innovation Challenge | No. of Applications received |
|---|---|
| Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout | 0 |
| Novel technical, process and market approaches to deliver an equitable and secure net zero power system | 1 |
| Unlocking energy system flexibility to accelerate electrification of heat | 1 |
| Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation | 1 |

In this Cycle, no Beta Phase Applications were submitted into Round 4 or Round 5 Innovation Challenges.

This section covers the assessment of the Cycle 3 Beta Applications received into the Round 3 Challenges as shown above

## 4.2 Beta Phase - Innovation Challenge: Novel technical, process and market approaches to deliver an equitable and secure net zero power system - Overview of Projects

For the Beta Phase under this Innovation Challenge, one Application was submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 25 June 2025 and is shown below.

| Project reference number | Project name | Funding licensee | Total Project costs (£) | Total Project contribution (£) | Total SIF Funding requested (£) | Recommended by Expert Assessors for funding (Yes/No) | Ofgem Decision for funding (Yes/No) |
|---|---|---|---|---|---|---|---|
| 10166255 | Network Security in a Quantum Future (NSiaQF) | National Grid Electricity System Operator Limited | 5,448,753 | 770,099 | 4,678,654 | No | No |

## 4.3 Beta Phase - Innovation Challenge: Novel technical, process and market approaches to deliver an equitable and secure net zero power system - Expert Assessors' recommendations on Projects

### 4.3.1 Project 10166255 - Network Security in a Quantum Future (NSiaQF)

| **Submitted Project description** |
|---|
| As UK Critical National Infrastructure, the energy system must be secure against malicious cyberattacks. Emerging quantum computing technologies will enable attackers to break currently secure encryption and open significant new attack vectors. To ensure resilience, energy networks must therefore consider quantum threats in their cybersecurity strategies; however, understanding quantum impact requires highly specialist knowledge. After successfully prototyping innovative risk management approaches to assessing the quantum threat to the energy network in Alpha, the Network Security in a Quantum Future (NSiaQF) Beta will develop quantum threat management tools to map quantum threats to energy system assets and prioritise appropriate mitigations. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to have addressed the Innovation Challenge because the use of software solutions to enhance network resilience meets the Innovation Challenge. It aims to achieve this through supporting the identification and ranking of security threats from advances in quantum computing. The Expert Assessors also consider it to meet the Eligibility Criterion because it focuses on enhancing resilience in the GB energy networks to emerging quantum enabled cyberattacks through novel software. It creates computing tools |

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| | | directly aligned with the second scoping theme of the Innovation Challenge, 'leveraging disruptive computing technologies to improve system visibility performance and cyber security'. The advanced versions of developed tools, named Q-ARM and QTT in the Alpha Phase support proactive risk assessment and informed decision making for the networks. This is again clearly aligned with the Innovation Challenge. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to gas and electricity consumers because there is a reduction in risk of failure against a counterfactual of doing nothing. The Project aims to improve energy supply resilience against quantum cyber-attacks and achieve cost efficiencies in post quantum cryptography mitigation, ultimately reducing costs and disruptions for consumers. The Project has also identified a clear benefit for energy network consumers by reducing the risk of large-scale man-made outages and improving the prioritisation of cyber security investments, rather than taking a rip and replace approach. The Expert Assessors said that the Application could be strengthened by identifying the further costs required for the Project to achieve business-as-usual transition. They thought these costs could be higher than anticipated and may impact the overall benefits returned to the consumers. This should be monitored throughout the Project. |

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| 3: Projects must involve network innovation. | Met | The Project is considered to involve network innovation because it introduces bespoke tools (Q-ARM and QTT) that integrate quantum threat modelling with sector-specific asset data. This provides operators with a decision-support system for informed, proactive management of cybersecurity risks. It represents a step change in how energy networks assess and mitigate emerging digital threats and goes beyond what is currently available in BAU operations |
| 4: Projects must not undermine the development of competitive markets. | Not met | The Project was considered by the Expert Assessors to be undermining the development of competitive markets due to the ownership arrangements for the intellectual property (IP) of Q-ARM, with concerns that Cambridge Consultants would retain full control, limiting access for network operators and potentially restricting wider industry innovation. The dissemination strategy was considered unclear and unconvincing in the interview, particularly regarding how the IP would be shared to other networks. While some cybersecurity elements may require redaction, the Expert Assessors emphasised that Cambridge Consultants should not have exclusive licensing rights and that networks must have access to the IP. It was suggested that Cambridge Consultants remain involved only in an advisory or hyper-care capacity. Additionally, the Expert Assessors considered the Application could have been strengthened by having a defined commercial model and product specification, which should be completed and reviewed by an advisory group before |

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| | | development proceeds. The Project's reference to open source was considered misleading by one Expert Assessor; QTT may be open source, but Q-ARM is IP-protected, which could increase costs for other network operators and negatively impact consumers. Finally, the Expert Assessors observed that Cambridge Consultants hold disproportionate control over the Project's outputs, while other Project Partners have limited involvement and access to knowledge, raising concerns about anticompetitive practices and the overall impact on market competitiveness. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered the Project to be innovative and risky because this is the first instance of bringing such a diverse range of datasets together at scale to drive network investment planning. The Project will generate new learning regarding driving energy sector engagement from those that ordinarily miss out on participating, and therefore on the benefits - for instance in flexibility. Additionally, the Expert Assessors noted the significant risk associated with the large number of stakeholders, both from the perspective of the number of Project Partners, and also with particular respect to the coordination and clear engagement needed with external stakeholders and other relevant initiatives. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criterion to be met. The Project strategically adds National Gas Transmission and Scottish Power Energy Networks to ensure that there is whole |

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| | | system relevance across gas and electricity, transmission and distribution. The industry wide quantum risks advisory group was well received by the Expert Assessors and they considered this to be fulfilling the consortium requirements. However the Expert Assessors considered that the consortium could be strengthened by including a consumer representative in the advisory group, which could advocate for consumer needs and benefits to ensure that they accrue in a timely manner. Overall, the Project Partners are sufficient for the Project because they collectively cover the full range of technical, operational and strategic capabilities needed to deliver and commercialise the proposed tools. |
| 7: Projects must provide value for money and be costed competitively. | Not met | The Expert Assessors did not consider the Project to be delivering value for money and be costed competitively because there was limited justification for appointing Cambridge Consultants, an external consultant, to lead the 19-month Project. Specifically, concerns were raised about the clarity and sufficiency of Cambridge Consultants receiving a disproportionately high amount of funding over the other academics who would be contributing to the tool, as well as the limited number of named contributors (seven individuals from Cambridge Consultants). The Expert Assessors did not consider the Project presented a sufficient commercial model outlining how the initiative would transition into business-as-usual (BAU) operations and thus return value back to the consumer. Questions were also raised about the competitiveness of the proposed |

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| | | discount rates. In response to questions regarding the separation of QTT and Q-ARM workstreams, the Project team indicated that the two components were interdependent and could not be delivered in isolation. While no concerns were identified with the QTT component, the cost associated with Q-ARM was considered disproportionately high. One Expert Assessor recommended further engagement with Ofgem to evaluate whether the proposed costs are commensurate with infrastructure requirements and comparable to similar work undertaken by other entities. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because it employs a structured approach with four distinct work packages, clear responsibilities and a combination of waterfall and agile development. The use of established Project management tools and progress reviews ensures that the plan is deliverable in a timely manner. The Expert Assessors recommended that the Project could provide stronger detail on the transitional activities required to get the product into business as usual. |

| **Recommendation to the Office of Gas and Electricity Markets (Ofgem)** |
|---|
| **DO NOT FUND** |
| The Expert Assessors do not consider that the Project has met all the Eligibility Criteria and do not recommend this Project for funding. |

The Project addresses the Innovation Challenge by applying novel software tools (Q-ARM and QTT) to enhance the resilience of the GB's energy networks to quantum-enabled cyberattacks. These solutions aim to provide new capabilities for identifying and ranking security threats, directly aligned with the Innovation Challenge of using disruptive computing technologies to improve system visibility, performance, and cybersecurity.

The Project has clearly identified potential to deliver a net benefit to consumers. By reducing the risk of large-scale outages and avoiding inefficient "rip and replace" investment approaches, the Project could improve resilience and prioritisation of cybersecurity spending. Benefits to consumers would stem from reduced disruption, greater security of supply, and cost efficiencies in the long term.

The Project involves network innovation through the integration of advanced quantum threat modelling with sector-specific asset data. This offers operators a decision-support system for proactive cyber risk management that is not currently available in existing BAU operations.

The Expert Assessors do not consider the Project to meet Eligibility Criterion 4 'Projects must not undermine the development of competitive markets'. The Expert Assessors considered the approach to intellectual property and dissemination to undermine the development of competitive markets, creating the risk of a single party dominating access. QTT may be open source, but grants disproportionate control to Cambridge Consultants. It risks restricting access by other operators, undermining competition, and limiting wider industry innovation. The dissemination strategy was considered unconvincing, with insufficient clarity on how other operators would access the tools and how outputs would be made available of fair and transparent terms. Exclusive licensing rights risks entrenching anticompetitive practices and increase costs for consumers.

The Project is considered innovative, novel, and risky, as it represents the first attempt to combine such a diverse range of datasets at scale for cybersecurity applications in the energy sector. It faces significant risks in coordinating multiple

stakeholders and managing engagement with external initiatives, but the potential to develop new metrics such as "time-to-attack" and "time-of-attack" marks a clear step beyond incremental innovation.

The Expert Assessors consider the Project to have sufficient stakeholders. The Project strategically adds National Gas Transmission, and Scottish Power Energy Networks, providing whole-system relevance across gas and electricity. The proposal to establish an industry-wide quantum risks advisory group was well received. However, the Expert Assessors considered the consortium could be strengthened by including consumer representation to ensure benefits are realised fairly.

The Expert Assessors do not consider the Project to meet Eligibility Criterion 7 'Projects must provide value for money and be costed competitively'. The proposed costs are disproportionate and not competitively justified, with an excessive share allocated to Cambridge Consultants. Daily resources appear insufficient for the scale of work, yet the consortium's academic and networks partners are under-resourced relative to their roles. The commercial model did not demonstrate how outputs would transition to business-as-usual, leaving little confidence that consumer benefits would materialise. The lack of clarity in the separation of Q-ARM and QTT components and the justification of proposed costs undermines competitiveness and consumer value.

The methodology is robust, with four defined work packages, clear responsibilities, and a mix of waterfall and agile approaches. The risk register and Project management structure provide confidence in the ability to deliver the technical programme in a timely manner. However, the plan did not provide sufficient detail on transitional activities to ensure adoption into BAU.

| **Decision from the Office of Gas and Electricity Markets (Ofgem)** |
| --- |
| **DO NOT FUND** |

Ofgem has agreed with the Expert Assessors that this Project should not be funded.

The Project has not met Eligibility Criterion 4 as it risks undermining the development of competitive markets. The proposed intellectual property arrangements around Q-ARM grant disproportionate control to a single delivery partner. This would restrict access for other networks, suppress wider industry innovation, and risk entrenching anti-competitive practices. The dissemination strategy was judged to be unconvincing, providing little assurance that outputs would be made available on fair and transparent terms.

The Project has not met Eligibility Criterion 7 as it was not considered to demonstrate value for money or competitive costing. The cost allocation heavily weighted Cambridge Consultants, without adequate justification or proportionality to the scale of the work proposed. The imbalance raises serious concerns over fairness compared with the roles of the academic and network Project Partners.. Furthermore, the absence of a credible commercial model and clarity on how the tools would transition into business-as-usual leaves little confidence that consumers would realise the promised benefits.

| **Recommended Project-specific conditions** |
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| N/A |

## 4.4 Beta Phase - Innovation Challenge: Unlocking energy system flexibility to accelerate electrification of heat - Overview of Projects

For the Beta Phase under this Innovation Challenge, one Application was submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 25 June 2025 and is shown below.

| Project reference number | Project name | Funding licensee | Total Project costs (£) | Total Project contribution (£) | Total SIF Funding requested (£) | Recommended by Expert Assessors for funding (Yes/No) | Ofgem Decision for funding (Yes/No) |
|---|---|---|---|---|---|---|---|
| 10166558 | CoolDown | Electricity North West Limited | 5,447,459 | 546,297 | 4,901,162 | Yes | Yes |

## 4.5 Beta Phase - Innovation Challenge: Unlocking energy system flexibility to accelerate electrification of heat - Expert Assessors' recommendations on Projects

### 4.5.1 Project 10166558– CoolDown

| **Submitted Project description** |
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| As GB warms due to climate change, uptake of Space Cooling (SC) is expected to increase significantly, leading to increased summer peak demands and greater network load for building comfort alongside the electrification of heat.<br><br>However, SC demand is currently poorly accounted for in distribution network planning using limited modelling. Additionally, SC's potential to provide flexibility has not been considered.<br><br>CoolDown will produce tools to enable network operators to understand the impact of SC at a local level. Trials of SC-tailored flexibility products will enable networks to mitigate adverse impacts, reduce network reinforcement requirements and optimise value for customers. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to have addressed the Innovation Challenge because it has potential to produce tools to enable distribution network operators to understand the impact of space cooling at a local level, thus assisting with network planning and also investigate providing alternative flexibility services. This is aligned with the Innovation Challenge and its aim of |

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| | | increasing participation of thermal flexibility in DSO and NESO markets. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors considered this Project to have clearly identified potential to deliver a net benefit to electricity consumers. The Project has shown it will potentially provide financial benefits through reduced reinforcement costs and savings from improved network planning. Additionally, inclusion of new flexibility services will provide insight into the potential revenue streams available to domestic and commercial electricity customers which may also reduce consumer bills. |
| 3: Projects must involve network innovation. | Met | The Project is considered to involve network innovation because it is exploring the impact of space cooling on the electricity network. The Project has articulated that this is an area that needs investigation given the predicted rise in the utilisation of space cooling across domestic and industrial/commercial uses. |
| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors did not consider this Project to be undermining the development of competitive market because it is seeking to test out demand response services which if successful will form part of BAU for DSO flexibility services. The demand response programme being developed will not be discriminatory as it will fit into any DNO's existing flexibility offering. Additionally, the Project has identified opportunities for dissemination and knowledge sharing with the intention for the tool to be available broadly. |

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| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered the Project to be innovative and risky because the Project is exploring the impact of space cooling on the network. The impact of space cooling on the network and future network planning has not been considered before. The additional consideration of the demand response trial which investigate the potential of space cooling to provide flexibility to the network contributes to the Project being overall, innovative novel and risky. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders because the consortium consists of eight suitably skilled Project Partners in addition to a comprehensive engagement plan. Additionally, there is senior level sponsorship from the network companies and a clear plan for engagement beyond the consortium, including with government entities. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors considered the Project to be delivering value for money and be costed competitively, firstly because it is leveraging the learnings of other Projects. The Project will use the existing business-as-usual flexible services platforms of Electricity North West Ltd (ENWL) and National Grid Electricity Distribution (NGED). Overall, the Project presents a well-justified budget in relation to its expected benefits and use of existing infrastructure. |
| 8: Projects must be well thought through and have a robust | Met | The Expert Assessors considered the Project to have a robust methodology which gives confidence to the Expert |

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| methodology so that they are capable of progressing in a timely manner. | | Assessors that it will be capable of progressing in a timely manner because the Project Plan has been well prepared, with clearly defined work packages and deliverables. The insertion of the stage gate after the first trial indicates active risk management. |

| **Recommendation to the Office of Gas and Electricity Markets (Ofgem)** |
|---|
| **FUND** |
| The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding.<br><br>The Project addresses the Innovation Challenge by developing tools to help distribution network operators understand the impact of space cooling at a local level. This will support network planning and explore the provision of new flexibility services, aligning with the challenge theme of increasing participation of thermal flexibility in DSO and NESO markets.<br><br>The Project has demonstrated clear potential to deliver net benefits to electricity consumers. These include reduced reinforcement costs, improved network planning, and additional revenue opportunities from new flexibility services for domestic and commercial customers.<br><br>The Project is considered to involve network innovation as it explores the impact of space cooling on the electricity network, an area that has not previously been investigated despite predicted growth in its use across domestic, commercial, and industrial sectors.<br><br>The Project does not undermine competitive markets, as it is testing demand response services that could become part of business as usual for DSO flexibility services. The programme is designed to be non-discriminatory, fitting into any |

DNO's existing flexibility offering, and includes a strong focus on dissemination and knowledge sharing.

The Project is regarded as innovative, novel, and risky. It will assess the impact of space cooling on the network and trial its potential to provide flexibility services, offering a new perspective for future network planning.

The Project includes participation from a broad and sufficient range of stakeholders, with a consortium of eight well-qualified partners and senior sponsorship from network companies. Engagement extends beyond the consortium to government entities, ensuring wide relevance.

The Project is considered to deliver value for money by building on the learnings of previous initiatives and using existing ENWL and NGED flexibility platforms to reduce costs. The quantified benefits have been clearly set out, and the Project is costed competitively.

The Project has a robust methodology, with clearly defined work packages, deliverables, and milestones. The inclusion of a stage gate following the first trial demonstrates active risk management and provides confidence that the Project can progress in a timely and effective manner.

| **Decision from the Office of Gas and Electricity Markets (Ofgem)** |
| --- |
| **FUND** |
| Ofgem has reviewed the Expert Assessors' evaluation of this Project and agrees with their recommendation to fund the Application.<br><br>The Project has demonstrated alignment with the Innovation Challenge by developing tools that will enable distribution network operators to better understand the impact of space cooling on local networks and explore new flexibility services. This supports Ofgem's objective of increasing participation of thermal flexibility in DSO and NESO markets. |

The Project offers clear potential benefits to consumers through reduced reinforcement costs, improved network planning, and the creation of new flexibility services that may reduce bills and generate additional revenue streams for households and businesses. It is considered to involve genuine network innovation by addressing the emerging challenge of space cooling on electricity demand, an area that has not previously been studied in depth.

Ofgem notes the strong stakeholder participation, with a consortium of eight capable partners supported by senior sponsorship from network companies and a clear plan for broader engagement, including government stakeholders. This breadth of involvement will help ensure the Project's outputs are relevant across the energy system.

The Project represents good value for money. It builds on learnings from other initiatives and leverages existing ENWL and NGED flexibility platforms, reducing costs and maximising efficiencies.

The Project methodology is robust, with clearly defined work packages, deliverables, and milestones. The staged approach and active risk management provide confidence that the Project can be delivered on time and to scope.

**Recommended Project-specific conditions**

The Project must demonstrate meaningful engagement with Ofgem, NESO and the Department for Energy Security and net zero, addressing how CoolDown findings may be utilised by stakeholders to help inform government policy. Prior to the second Quarterly Review Meeting, the Funding Party must provide to the Monitoring Officer a stakeholder engagement plan which addresses how the Project will engage with the above bodies. The stakeholder engagement plan should be updated periodically and reviewed, thereafter, at each Quarterly Review Meeting.

## 4.6 Beta Phase - Innovation Challenge: Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation - Overview of Projects

For the Beta Phase under this Innovation Challenge, one Application was submitted to Innovate UK through the Innovation Funding Service (IFS) portal by the closing deadline of 25 June 2025 and is shown below.

| Project reference number | Project name | Funding licensee | Total Project costs (£) | Total Project contribution (£) | Total SIF Funding requested (£) | Recommended by Expert Assessors for funding (Yes/No) | Ofgem Decision for funding (Yes/No) |
|---|---|---|---|---|---|---|---|
| 10166266 | Hydrogen Cost Reduction (HyCoRe) | Electricity North West Limited | 13,085,034 | 1,935,542 | 11,149,492 | Yes | No |

## 4.7 Beta Phase - Innovation Challenge: Enabling power-to-gas (P2G) to provide system flexibility and energy network optimisation - Expert Assessors' recommendations on Projects

### 4.7.1 Project 10166266 – Hydrogen Cost Reduction (HyCoRe)

| **Submitted Project description** |
|---|
| HyCoRe will develop and trial a hybrid plant comprising renewables, energy storage systems, and electrolysers ("the HyCoRe system"), to demonstrate how the system can be used to support gas and electricity networks transition to net zero, whilst making green hydrogen as economically viable as possible by:<br><br>**Reducing CAPEX** - developing a transferable methodology to estimate plant component size/capacity requirements for any given scenario.<br>**Reducing OPEX** - developing an optimised plant control system to minimise component degradation and increase life expectancy.<br>**Generating new revenue streams** - combining multiple assets into a single hybrid plant to enhance dispatchability and provide stability services. |

| **Eligibility Criteria met or not met – Expert Assessors' evaluation** | | **Additional justification** |
|---|---|---|
| 1: Projects must address the Innovation Challenge set by Ofgem. | Met | The Expert Assessors considered this Project to have addressed the Innovation Challenge because it seeks to establish a proven solution that incorporates the use of electrolysers to provide system services and to optimise their deployment, alongside renewables and battery storage to unlock whole system value. The Expert Assessors believe that the novel hybrid plant will support the transition to net zero and unlock whole system value. The Expert Assessors believe that the Project is aligned to the aims of the Innovation |

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| | | Challenge because it sets out to make green hydrogen economically viable and addresses the enabling aspects of delivering the hydrogen economy at scale. |
| 2: Projects must have clearly identified potential to deliver a net benefit to gas or electricity consumers | Met | The Expert Assessors considered this Project to have identified potential to deliver a net benefit to gas consumers because it has potential to improve load and generation demand matching in areas of network constraints. This could result in lower network strengthening costs and a more balanced network overall. The Expert Assessors also noted the Project's potential to enhance grid resilience and lower energy costs through optimised green hydrogen production and utilisation. One Expert Assessor mentioned that the case for gas consumers lacked clarity in the proposal, resting on the displacement of natural gas with hydrogen. However, the Expert Assessors still considered the Eligibility Criterion to be met. |
| 3: Projects must involve network innovation. | Met | The Expert Assessors considered this Project to involve network innovation within the Project scope. The Expert Assessors considered that the first use-case defined in this proposal, specifically the displacement of the use of natural gas for preheating as gas transitions from transmission to distribution networks, to be innovative. This would make use of existing assets to help decarbonise transfer stations. The remaining use cases appeared to sit outside of the Network remit. However, they could bring benefits to the Network in avoided cost and ancillary or flexibility services. |

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| 4: Projects must not undermine the development of competitive markets. | Met | The Expert Assessors did not consider this Project to be undermining the development of competitive markets because it aims to demonstrate the concept of a hybrid plant comprising multiple components that can be procured competitively. The design is not tied to a specific electrolyser choice, for example. The Project's aims to derisk hydrogen production and integration meant that the Expert Assessors felt that it was fostering new opportunities for the industry rather than stifling existing ones. |
| 5: Projects must be innovative, novel and/or risky. | Met | The Expert Assessors considered elements of the Project to be innovative and risky because the coordination and optimisation of electrolysers and use of hydrogen for optimised energy balancing, combining Renewable Energy Store and storage is novel for the networks. The interactions between multiple energy vectors were considered innovative by the Expert Assessors. One of the Expert Assessors also considered the Project to be risky because it includes a demonstration relevant to water treatment and domestic heating, which are notably difficult industries to decarbonise. |
| 6: Projects must include participation from a range of stakeholders. | Met | The Expert Assessors considered this Project to include participation from a sufficient range of stakeholders for this Eligibility Criteria to be met because The Project team includes all the necessary equipment suppliers, system specialists and demonstration resources, including utility company participation, which is particularly important for two of the four use case studies being developed in this |

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| | | Project. The Expert Assessors agree that there is a relevant mix of expertise within the consortium. However, the Project could be further strengthened by including a participant who understands the investor perspective of this development for future commercial scalability prospects. |
| 7: Projects must provide value for money and be costed competitively. | Met | The Expert Assessors considered the Project to be delivering value for money and be costed competitively because the day rates within the consortium are costed competitively. One Expert Assessor did not consider the Project to be delivering value for money and to be costed competitively, because large elements of the scope are not aligned to network innovation and some aspects of the planned demonstration have already been de-risked through previous innovation Projects such as using waste heat for space heating, which is one of the use cases outlined in this proposal. However, the Expert Assessors still considered the Eligibility Criterion to be met. |
| 8: Projects must be well thought through and have a robust methodology so that they are capable of progressing in a timely manner. | Met | The Expert Assessors considered the Project to have a robust methodology which gives confidence that it will be capable of progressing in a timely manner because the Project Plan had clear milestones and multiple stage gate reviews. This gave confidence to the Expert Assessors that it will progress in a timely manner and undertake the relevant life cycle assessments as required. One Expert Assessor did not agree that the Project's methodology was sufficiently robust because there was little analysis of |

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| | | the commercial case for each of the use cases outlined in the proposal and commercial considerations were not integrated with the stage gate assessment planned in the Project. However, the Expert Assessors still considered the Eligibility Criterion to be met. |

| **Recommendation to the Office of Gas and Electricity Markets (Ofgem)** |
|---|
| **FUND** |
| The Expert Assessors agree that this Project has met the Eligibility Criteria and recommend this Application for funding.<br><br>The Project addresses the Innovation Challenge by proposing a hybrid plant solution that integrates electrolysers, renewable energy, and battery storage to optimise deployment and unlock whole system value. The Expert Assessors believe this approach supports the transition to net zero by enabling economically viable green hydrogen production and addressing the enabling aspects of the hydrogen economy at scale.<br><br>The Project demonstrates clear potential to deliver a net benefit to consumers by improving demand and generation matching in constrained areas of the network, reducing reinforcement costs, and enhancing grid resilience. Optimised hydrogen production and utilisation could lower costs for consumers. While the cost–benefit analysis could be strengthened with more detailed technoeconomic data, the Project nonetheless shows a pathway to meaningful consumer benefits if further work is undertaken during delivery.<br><br>The Project is considered to involve some network innovation, particularly through the displacement of natural gas in preheating applications as gas transitions from transmission to distribution networks. This is seen as an innovative step in making use of existing assets to decarbonise operations. While some use cases were |

considered to fall outside the immediate network remit, the Project could still deliver benefits through avoided costs and ancillary services.

The Project is not expected to undermine competitive markets. Its design is flexible, not tied to a specific electrolyser supplier, and supports a competitive environment for procuring components. By aiming to de-risk hydrogen production and integration, the Project fosters new opportunities for the sector.

The Project is both innovative and risky as it coordinating electrolysers with renewable generation and storage for balancing services is novel and represents a meaningful advance in multi-vector energy optimisation. However, demonstrations in difficult-to-decarbonise areas such as water treatment and domestic heating add complexity and risk, which the Expert Assessors note should be managed carefully.

The Project includes sufficient stakeholder participation, with equipment suppliers, system specialists, demonstration resources, and utility partners represented. This provides a strong mix of technical and operational expertise. The Expert Assessors highlighted that investor perspectives should be included in the consortium or advisory structures to strengthen commercial scalability.

On value for money, two Expert Assessors considered the Project to be competitively costed and providing consumer value, though one raised concerns around alignment of certain use cases with network innovation and potential duplication with earlier initiatives. To mitigate these risks, the Expert Assessors recommend that funding should proceed on a staged basis, with a clear assessment at the second stage gate to confirm investor interest and commercial viability.

Finally, the Project methodology was found to be generally robust, with clear milestones, stage gates, and risk management processes in place. While one Expert Assessor noted gaps in the integration of commercial considerations and risks related to contracting across 12 Project Partners, the overall plan was judged sufficient to provide confidence in timely delivery.

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

| DO NOT FUND |
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| Ofgem has reviewed the Expert Assessors' evaluation of this Project and disagrees with their recommendation to fund the Application.<br><br>Ofgem considers that the Project has not met Eligibility Criterion 3. Although the proposal highlights some innovative elements, such as the application of hydrogen in preheating, a number of the use cases overlap significantly with activities already being progressed, such as space heating. This duplication reduces the additionality of the Project and fails to demonstrate that it represents a meaningful step forward in network innovation.<br><br>Ofgem also considers that the Project has not met Eligibility Criterion 7. The budget directs substantial expenditure towards demonstrations that replicate or extend earlier initiatives, including heat decarbonisation through waste heat and hydrogen blending. These areas have already been supported through previous innovation funding, meaning the likelihood of new consumer benefits is limited and uncertain. The duplication of effort undermines the Project's claim to deliver good value for money. While the consortium has competitively costed elements of the plan, Ofgem is not satisfied that the scope justifies the overall level of funding requested. |

| Recommended Project-specific conditions |
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| N/A |