SIF Alpha Round 4 Project Registration

Date of Submission

Dec 2025

Project Reference Number

10166260

Initial Project Details

Project Title

DEsign for Live Line Technology Acceleration (DELLTA)

Project Contact

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Challenge Area

Faster network development

Strategy Theme

Optimised assets and practices

Lead Sector

Electricity Transmission

Project Start Date

01/11/2025

Project Duration (Months)

6

Lead Funding Licensee

NGET - National Grid Electricity Transmission

Funding Mechanism

SIF Alpha - Round 4

Collaborating Networks

National Grid Electricity Transmission

Technology Areas

Active Network Management

Health and Safety

Asset Management

Maintenance & Inspections

Overhead Lines

Electricity Transmission Networks

Environmental

Substations

Project Summary

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.
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.

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.

Add Preceding Project(s)

NGET/DELLTA/FND/Rd4_Discovery/10145555 - DEsign for Live Line Technology Acceleration (DELLTA)

Add Third Party Collaborator(s)

The University of Manchester

Frazer-Nash Consultancy

Project Budget

£509,025.00

SIF Funding

£458,121.00

Project Approaches and Desired Outcomes

Animal testing (not scored)

- ○ Yes
- ◉ No

Problem statement

System context
Our transmission network is seeing large-scale upgrade and new build as part of the Great Grid Upgrade. Delivering this whilst simultaneously maintaining ageing and more highly utilised assets, poses complexities in meeting the 2030 Clean Power targets. Continuing to deliver maintenance and upgrades via outages poses fundamental challenges.

The increase in non-dispatchable generation, demand and network utilisation presents difficulties in accessing assets for regular maintenance. We evidenced this within the Discovery phase, where we observed a downward trend in planned maintenance outages being delivered, potentially impacting asset health. New approaches are needed to prevent an accumulation of issues, potential unplanned outages and reduced network reliability and security.

Where outages are taken, they can incur significant constraint costs, with associated CO2 impacts. Constraints are already increasing due to a lack of network capacity. Outages compound this issue. High constraint costs can also be a barrier to taking a maintenance outage. The Discovery phase project detailed system constraint costs and the contribution of planned outages to these constraints.

Project problem and approach
Live Line Working (LLW) provides an optional maintenance technique to access overhead line / substation assets without the need for a system outage. This project seeks to enable LLW in novel ways, through embedding LLW as part of the design and by leveraging new network and robotic technologies to facilitate LLW.

Research within Discovery highlighted that LLW is common internationally, with varied examples including from France, Poland, USA, Australia, India and China. The UK remains more risk averse than other countries with regards to live working. This is in part driven by statutory Health and Safety requirements, where The Electricity at Work Regulations 1989 (Regulation 14) requires strong justification for LLW.

HV assets are currently not designed for LLW. For example, an existing design of a HV tower and associated fittings do not take into account the electrical clearances to carry out LLW. Some recent projects have focused on compact design (e.g. T-pylons) which have resulted in increased challenges in respect of LLW. Similarly, substations are built around standard clearances and footprint restrictions, rather than designed to ease access for live replacement of assets.

Discovery identified a range of technologies which enable LLW and condition monitoring. There is the opportunity for wider adoption of these technologies to reduce outage times and constraints and improve network resilience. Considering the large volume of transmission system maintenance activity planned across T3 and beyond, even a modest change to maintenance practice (e.g. insulator and fitting changes on ~3600 towers) could have significant implications for outage periods and constraints.

The DELLTA Alpha phase will investigate whether technical specifications and maintenance practices could be altered to allow LLW. Through this it addresses "Innovation Challenge 1: Faster network development", by facilitating faster connection, upgrades, maintenance and replacement of assets. Building from work in Discovery, the Alpha phase will specifically assess:

1. Which novel LLW enabling technologies or design options are most suitable for deployment on the GB network (considering both existing assets and re-evaluating designs of existing assets to better enable LLW)
2. If adopted more widely, how LLW can impact asset health, system availability, system upgrades and constraint costs.
3. The safety and risk justification for LLW, the situations where LLW is justifiable and the process for making LLW safe.

The basis of the project is to identify innovative tools and designs to avoid downtime required for maintenance, thus providing cost savings and reliability to the UK billpayer. As such, the tools and design changes being considered within this project will be

applicable to all HV network operators (especially above 66 kV).

Innovation justification

Challenge
DELLTA primarily addresses "Innovation Challenge 1: Faster network development" through:
Enabling fewer planned, or shorter, network outages, hence improving network access and reducing network constraints.
Facilitating more timely maintenance and reducing the probability of faults.
Freeing up outage windows for new connections and system improvements, recognising that network access is a critical challenge area in the CP2030 plan.

Building on Discovery

The Discovery project provided insights that shaped the Alpha scope. These include:
The premise of Discovery was valid. System access issues mean that fewer planned outages are being delivered and constraints are increasing. There is an undesirable trade-off between incurring significant constraint costs, or asset health degradation.
UK remains more risk averse regarding LLW and this is a barrier to adoption. An Alpha WP will demonstrate how LLW can be achieved safely, and where it is justifiable (e.g. when system costs justify additional risk).
OHLs are the primary application for LLW and the focus of Alpha. However we will look for relevant substation applications.

A map of project stakeholders responsible for assessing and progressing different options is attached.

Project Innovations

The project focuses on innovative LLW methods that are complementary to BaU activities. Innovative aspects include:
New build: Developing changes to the design of towers and fittings to simplify the process of intervention (e.g. changes to L12 tower design).
Existing build:
Use of new technologies to support safer LLW for human operators. Externally gapped line arrestors (EGLA) are an example technology which could enable LLW through reducing overvoltages on the OHL and hence reducing the minimum approach distances and assist in access to the compact towers.
Development and application of novel robotics technologies to reduce outage durations or enable new live monitoring activities.

Design of new towers and fittings are still at the concept phase, and hence around TRL 4, with low IRL and CRL.

Technologies like EGLAs are around TRL 7-9 for lightning protection within transmission applications. However, their performance for managing overvoltages to protect line workers is not well understood and therefore has a lower readiness level. IRL is 4-6 given NGET's limited experience with these technologies. CRL is assumed to be between 4-6 for this use case.

Other options are at an earlier stage of development. We identified around 20 drone/robotics with various technology readiness levels (but all < TRL 7). IRL and CRL are lower (i.e. IRL and CRL <4) given the need for GB TOs to understand their use in a practical environment and integrate these into BaU processes.

Project scale and funding route

LLW presents both a safety risk to personnel and innovation risk through the adoption of new designs and technology solutions. In both cases the potential reward is high. LLW will not be widely adopted without significant work to derisk the maintenance activities and supporting designs and technologies. This is a significant barrier to BaU.

The scale and complexity of the exercise also requires a multi-party collaboration. SIF is seen as an appropriate funding mechanism to bring in a wide range of skills, across academia, utilities, OEM's and consultancy organisations, in a short span of time.

The Alpha project is appropriately sized to allow further option assessment and understand practical barriers for implementation before a large Beta demonstration of a specific technology and/or detailed development for BaU.

Counterfactual

The counterfactual is planned outages for maintenance work. This will continue to be the BaU solution for most maintenance.

Impact and benefits (not scored)

Financial - future reductions in the cost of operating the network

Environmental - carbon reduction – direct CO2 savings per annum

New to market – products

New to market – processes

Impacts and benefits description

Pre-innovation baseline
The primary benefits of DELLTA are:
Reductions in system operability costs and associated carbon reduction,
Improved network access enabling more timely maintenance, improving asset health, reducing unplanned outages and improving network reliability.
Freeing up outage windows for new connections and system improvements.
Currently, most maintenance and network upgrades are conducted during planned network outages. System capacity and resilience is reduced during these outages and they may cause network constraints, incurring operability costs. Costs are associated with turning down generation in the constrained region (often renewable generation), and subsequently re-dispatching generation elsewhere to meet demand (often Combined Cycle Gas Turbine (CCGT) generation); this swap from renewable generation to CCGT increases CO2 emissions.
GB system constraint costs for 2024/2025 were £1,905m. Of this, £1,710m is attributed to thermal constraints. Previous analysis estimates that half of constraint costs are due to planned outages. Outage related constraint costs are therefore around £855m, with associated CO2 emissions of up to 5,130,000 tonnes.
The metrics we used to report benefits of DELLTA in Discovery are based on constraint costs and CO2 emissions. We expect there will also be significant benefits related to network access, asset health and network resilience as described qualitatively in our CBA. These will be assessed further within Alpha.

Initial forecast benefits (Financial and Environmental)
Four broad solution options for facilitating LLW on overhead lines have been assessed in Discovery:
Option 1 - Adapt existing transmission towers at time of next maintenance to allow LLW, with future activities to be carried out live line
Option 2 - Amend the design of new towers to ensure that LLW is feasible on new lines in the future
Option 3 - Develop new approaches to allow non-automated LLW on existing towers
Option 4 - Develop new options to allow automated LLW on existing towers
For each option, we assessed NPV over 80 years for two situations: one has high cost and low benefit, the other low cost and high benefit. This provides pessimistic and optimistic estimates and thereby offers a range of plausible NPVs as set out below:
Option 1: £5.62bn to £18.39bn
Option 2: -£0.81bn to £0.06bn
Option 3: £0.99bn to £3.61bn
Option 4: £0.82bn to £3.01bn
Most cases deliver a positive whole-life NPV, even for the pessimistic case. In many cases the NPV is highly beneficial. The negative NPV for Option 2 pessimistic case is likely due to:
Overly pessimistic assumptions around costs and benefits.
Benefits are only realised when the first outage is required (assumed after 18 years). NESO data suggests that thermal constraints will have reduced by this stage. Furthermore, the CO2 reduction benefit reduces to zero, on the assumption that the electricity system will provide alternative dispatchable generation with zero carbon emissions.
The CBA therefore emphasises that:
Actions to enable LLW on the current system bring immediate benefits which significantly outweigh the costs.
Options to enhance new assets will likely be beneficial but are more sensitive to cost of implementation and uncertainties on future constraints. Qualitatively defined benefits around asset health and system resilience will also apply to these assets.

New to market – products / processes

The above benefits are only realisable with the development and adoption of new products and processes. The Alpha scope contains a detailed technology review and down selection, from which we will better understand design and technology development requirements and where new products could be developed. We also plan to develop and demonstrate LLW processes. This knowledge will be shared through various conferences and working groups, and if successful, similar approaches could be rolled out to other TOs and DNOs.

Teams and resources

Retaining the main project partners from the Discovery phase, NGET have chosen project partners with the required range of skills and experience:
1. National Grid Electricity Transmission (NGET) - HV transmission system owner (TO), NGET will lead the project. NGET is responsible for the whole lifecycle of assets that this project will consider and are therefore ideally placed to advise on the assets, maintenance activities, and novel design options that this project will consider. NGET will lead on various WPs, with input from different NGET teams including Innovation, Health and Safety, Operations, Strategic Infrastructure, Outage Planning, and the Transmission Network Control Centre (TNCC). NGET will also support other WPs by providing access to their expertise, asset data, and advice on overall strategic project direction. Within NGET, the technical sponsor of the project is a specialist access and technology engineer in NGET's operations team and is responsible for developing NGET's live line working strategy, including tool and process development.

2. University of Manchester (UoM) - Experts in the design and maintenance of high voltage transmission systems, assets and components and power system resilience. UoM will lead the technical options development, identifying live line assets and activities, and novel design and tooling options. UoM will also deliver a system reliability impact assessment and support demonstration activities.

3. Frazer-Nash Consultancy (FNC) - Experienced SIF project managers, and experts in applied systems engineering, technology roadmapping, and cost-benefit assessment for novel solutions. FNC will project manage the Alpha Phase, coordinating activities between the different partners to assure a coherent set of outputs. They will also be responsible for assessing the cost-benefit of the identified live line derisking opportunities and developing roadmaps to progress these through future project phases and into business as usual.

NGET, FNC and UoM have worked together on previous SIF projects (including the Discovery phase of this project) and have well established working relationships and collaborative delivery practices. The key staff from these organisations who delivered the Discovery phase will continue to support the Alpha phase.

To support project delivery and our consortium’s understanding of technology options and OEM capabilities, three new subcontractors (contracted by NGET) will join the project:

University of Liverpool (UoL) – Experts in condition monitoring and diagnostics of high voltage equipment, design and optimisation of insulation systems for overhead transmission lines and high voltage test techniques. UoL will support the concept identification and down-selection activities through in-depth research on options. They will also be co-authoring parts of the technology review report.

Allied Insulators – An OEM with significant experience in designing, manufacturing and supplying insulators and overhead line fittings for electrical transmission and distribution systems. As a supplier to NGET, they have a detailed understanding of the GB transmission system and the equipment used. Allied Insulators will support concept identification and evaluation within the project activities, particularly those related to live insulator replacement.

PLP – An OEM who supplies a wide range of electrical transmission and distribution equipment. This includes insulators, various connectors, conductor repair equipment. PLP will also support concept identification and evaluation within the project activities, providing an OEM view on the feasibility of solution options.

SSEN-T were engaged as part of the Discovery phase project and noted the potential value of the project. We will engage with NESO, DNOs, GB TOs, and the ENA in Alpha and explore greater engagement in future phases.

We plan to use test and training facilities including UoM’s HV lab; NGET’s Deeside Centre for Innovation and Eakring Training Centre within the Alpha phase.

No other external parties, network users or consumers are vital for the phase's success.

Project Plans and Milestones

Project management and delivery

PM Approach & Risk Management
FNC will project manage the Alpha phase with oversight from NGET, the lead partner. FNC are experienced in managing and delivering SIF projects, having delivered several successful Discovery and Alpha phase projects previously.
A kick-off meeting will be scheduled for the first week of the project to confirm the project requirements, schedule, delivery approach and ways of working across the project. Weekly meetings will be held thereafter to bring all project partners together, ensure a common understanding of scope, update progress against the plan, review and update the risk register and manage dependencies. These will be supported by ad-hoc meetings as required to deal with specific issues as they arise. Progress will be reported regularly as required to the Monitoring Officer and Innovation Lead appointed by UKRI.
Senior FNC staff will provide oversight of project performance beyond the direct project team. Following FNC's ISO9001 accredited Quality Management System, an independent project auditor will also be appointed. We will take a waterfall approach to the project and will use a Gantt chart to track timescales and deliverables.
The Project Management template (PMT) workbook captures initial project risks, and these risks will be proactively managed by the FNC PM. Additional risks will be captured, and mitigations established forming part of the project management approach. Weekly partner meetings will also include an agenda item for discussing and raising risks and opportunities.
Work Package Links and Dependencies
Five delivery work packages (WP) are described in our project plan, with WP6 providing a project management operations function. In brief these are:

WP1 Establishing Capability: Conduct extensive stakeholder engagement to better understand live line capabilities, health and safety policy requirements and alignment with NESO around outage planning.

WP2 Concept Selection: Identify and down-select design, tooling and procedural issues which will enable LLW on existing and new transmission system infrastructure.

WP3 Network and Economic Impacts: Assess and quantify the network and economic impacts of LLW

WP4 Live Line Process Demonstration: Demonstrate that LLW is achievable safely by deploying existing safe working practices and develop safety case.

WP5 Roadmapping and Gap Analysis: Building a future implementation roadmap for LLW.

There are various dependencies across the WPs, with early deliverables providing an input into later work packages. WP1 sets the baseline for live line working, and will form an input into WP2, WP4 and WP5. Technology options from WP2 will form an input into WP3 (CBA) to enable their costs and benefits to be robustly assessed. Down-selected options from WP2 will also input to WP5 to enable their implementation roadmaps to be determined.

These dependencies are allowed for in the project plan. Each WP has been designed to contain standalone tasks, which can be initiated at the beginning of the Alpha phase. There is also preparatory work which can be done on WP2, WP3, WP4 prior to receiving data from the linked work packages.
Supply Interruptions
This project will not result in any supply interruptions during the Alpha Phase. It will comprise desk-based research and development, and testing within a laboratory and test centre environment.
A potential benefit of the project will be to reduce maintenance-based network outages and hence reduce the probability of constraints and outages. WP3 will seek to quantify the impact on supply interruptions.
Consumer Impact/Interaction
This project will not have any direct impact to the consumers in the Alpha Phase. If envisaged benefits are realised, then the project could enable more efficient maintenance and connection activities and improve network access.

Key outputs and dissemination

By the end of the Alpha phase we aim to:

Have down-selected technology or design options which could be demonstrated within a Beta project, covering both existing and

new build circuits – University of Manchester and NGET will primarily be responsible for this output. Subcontractors University of Liverpool, PLP and Allied Insulators will support this activity.

Understand whether new tower design options would be feasible for Great Grid Upgrade projects – NGET will primarily be responsible for this output.

Understand the impact of live line working on system availability with network reliability and overvoltage transient studies – University of Manchester will primarily be responsible for this output.

Quantify the cost-benefit of adopting LLW, and from this the specific use cases where this is cost effective – Frazer-Nash will primarily be responsible for this output.

Have an estimate of the overall network and consumer benefits of facilitating the wider use of live line maintenance work – Frazer-Nash will primarily be responsible for this output.

Understand and demonstrate the framework/process for justifying LLW, what policy changes would be required to enable this to become BaU – NGET will primarily be responsible for this output. NESO will be engaged in this activity, particularly with respect to determining the conditions when an outage cannot be secured.

Have demonstrated a LLW maintenance activity on a non-live OHL and understood whether it could be used to accelerate maintenance activity across T3 (which would otherwise be deferred to T4 or later) – NGET will primarily be responsible for this output.

Develop a proposed Beta phase demonstration on a live section of the transmission network with new technology – NGET and Frazer-Nash will primarily be responsible for this output.

Have identified any additional suppliers and other stakeholders to engage within a Beta phase - Frazer-Nash will primarily be responsible for this output.

Project Dissemination

The project partners will collaborate on the dissemination of the project outputs. The outputs will be shared through the project 'show and tell' webinar, and end of phase report and through posts on forums such as LinkedIn.

Opportunities to disseminate early project findings through academic/industrial publication or conference presentation will be assessed as the Alpha phase progresses. From the Discovery phase, it is the intention of the project team to submit a conference paper to CIGRE Paris 2026 (with NGET and UoM as lead authors). We will also promote the project through the international live line technology conference Icolim 2025 in Oslo, Norway, the Annual ENA SHE Management Conference, the Annual ENA Energy Innovation Summit, CIGRE and ENA live line working groups.

Reporting to UKRI will be undertaken by NGET. The project team plans to conduct an end-of -phase "Progress and Lessons Learned" session sharing best practice and know-how to interested stakeholders. The project learning and report will be publicly available through ENA smart network portal.

Competitive markets

The project is focussed on tools and techniques for how NGET could improve existing asset management practice and reduce the impact of network maintenance on system operability costs. This should reduce costs and increase network access for system users.

As the project scope relates to alternative approaches to activities which NGET are already undertaking, this will not undermine

the development of competitive markets.

Commercials

Intellectual Property Rights (IPR), procurement and contracting (not scored)

All Project Partners will use the default IPR arrangement as set out in Chapter 9 of The SIF Governance Document. Compliance with the IPR arrangements as defined in the SIF Governance document will be ensured for each of the project partners via the contract that they will each sign with NGET to participate in the project.

The Alpha plan includes project support from three subcontractors: University of Liverpool, Allied Insulators and PLP. These parties will be subcontracted by NGET.
All the project partners and subcontractors have agreed that the key learning from the project will be widely shared with stakeholders, such as other utilities and the regulators.

Commercialisation, route to market and business as usual

This project could become part of the business as usual (BaU) through two routes:

1. Deployment on new networks
The project is seeking to develop changes to the design of towers and fittings to provide safe access for LLW and simplify the process of intervention on newly built assets.
Infrastructure projects within NGET, including Great Grid Upgrade projects, are the primary market for this. The NGET Strategic Infrastructure (SI) team will contribute to the Alpha project, and is well placed to evaluate design options and incorporate these into future plans where justifiable. The teams of Design & Engineering, Asset Management and SI Innovation will work together with ET Innovation to complement the ongoing activities elsewhere in the business to get the most of benefits from the project outputs.
The inclusion of two OEMs within the Alpha delivery team also provides potential commercialisation partners and a route to market for new components such as OHL insulators and fittings.

2. Deployment on existing networks
There is a clear business need on the existing network, which will support BaU deployment of the DELLTA LLW solutions.
For example, insulator replacement is a key maintenance activity where LLW could be deployed. Within T3, NGET plans to replace insulators and fittings on around 3500 transmission line spans. Within this, around 300 spans of L2 towers are in a region of the network where NGET are unlikely to receive approval for an outage and as such cannot be delivered. WP4 seeks to demonstrate this maintenance activity. This will be delivered through the hands-on support from the OHL special access operations team who will be the end-user of the newly developed procedure and processes, enabling efficient integration of the learning within BaU activities. Successful demonstration work within WP4 could translate into BaU and help deliver this T3 work through LLW.
The learning from this could then be extended to other maintenance activities, with newer technologies identified within WP2 potentially supporting this. In WP1, the system operator will be engaged to understand how LLW can be used to help manage the system and improve system access for asset maintenance. This will help to produce a framework to provide LLW as an option to the NGET.
WP5 of the Alpha phase will develop a roadmap which will articulate the commercial readiness at the end of Alpha, the gaps that need to be addressed before BaU adoption and how this could be addressed (including through later phases of work).
It's noted that key findings from the work will be made publicly available to support other parties in identifying and developing new solutions.

The Senior Sponsor from NGET has provided regular steer to the project. During Discovery this primarily included attending project meetings and workshops and the review of interim outputs to ensure that the direction and learnings are relevant to NGET's network. They will continue within this role in Alpha, and provide direct oversight and delivery of WP4. The Head of Technical Safety, OHL Operations Director, Head of OHL Safety & Engineering, Policy team, OHL Capital Development team were consulted in Discovery and for the Alpha scope. They will be actively participating in delivery of the project which will enable the learning to be widely disseminated. Greater knowledge and understanding of risk and hazards of Live Line, and how this risk has changed as technology has evolved, may change the risk appetite of NGET with respect to LLW. It may also lead to wider acceptance of LLW across the business and stakeholders including utilities and regulators.

Policy, standards and regulations (not scored)

Policy and Regulatory Challenges

There are no known policy or regulatory issues that should affect the Alpha phase. However, as we are investigating innovative solutions, and those that impact system and personal risk, there may be policy or regulatory challenges affecting some project outcomes as we progress from concept to delivery.

A key challenge within the project will be to justify the need for live line working under The Electricity at Work Regulations 1989 (Regulation 14 Work on or near live conductors). This is being explored within work package 1 and 4 of the Alpha plan, which will seek to determine the conditions under which live line working is justifiable.

There are no ongoing conversations with policymakers or agencies in relation to barriers to project progression or implementation. Work within this Alpha phase will determine what engagement is required in the future. This will be planned into the Beta Phase if appropriate.

Derogations or Exemptions

We do not anticipate requiring derogations or exemptions in any future phases of this project as what we develop will take into account regulatory frameworks and requirements and so we expect to mitigate any need for this. Should something arise in the future, we will flag this in the next phase application.

Value for money

Project costs

Total Project Cost: £509,025
SIF Funding Required: £458,121
Project Contribution: £50,904 (equivalent to 10% of project cost)
Subcontractor costs: £75,220 (included in NGET's total cost of £265,706)

The balance of costs and SIF funding across partners reflects the effort required from each partner for delivery of the specified work packages and the use of the partner facilities to deliver this work. The contributions from partners equate to 10% of project costs, meeting the 10% minimum set out in SIF guidance.

There are three subcontractors being used in the Alpha Phase – University of Liverpool, Allied Insulators and PLP. All three of these parties will be subcontracted to NGET. These subcontractors provide a unique set of domain knowledge, understanding of current systems and potential future developments and a practical perspective on the feasibility of solution options. Depending on the technology options progressed, the OEMs may also be involved in technology development and implementation in later phases of the project or for any BaU deployment. We believe a subcontracting approach for these parties is appropriate given their limited scope and proportionately lower budget within this phase of the project.

Partners also agreed on inviting other stakeholders to better understand different products available in the market and how these can help with the project objectives. The project is costed mostly in terms of labour cost (including that of the subcontractors). No additional innovation funding from other sources is being used in this project.

Project work will be carried out at the partners' normal workplaces. WP4 will make use of pre-existing facilities, with testing being conducted at University of Manchester High Voltage labs (5 days), NGET's Deeside facility (5 days) and NGET's training facility at Eakring (15 days). No network assets are planned to be used within this phase of the project.

Value for Money

The Alpha phase presents the opportunity to establish which new asset designs and technologies could enable greater use of live line working and those which could realistically be deployed by GB TO's in coming years. Through adoption of such designs and technologies, the project's purpose is to reduce the need for maintenance related outages. Benefits of this (covered in detail within Q8) include better management of system outages (potentially freeing up outage slots for new connections and system improvements), delivery of more efficient and timely maintenance, and a reduction in system constraint costs. The CBA demonstrates that if outages can be reduced by even a small number, the benefit (just in terms of constraint costs) can be substantial.

Given the scale of network build over the coming decade, any changes to better enable live working would need to be identified and adopted soon for them to be reflected in planned network developments. Without a project focussed on this activity, these

changes to design and working practices are unlikely to be adopted, and the related benefits will not be realised.

The route to realising benefits through transition BaU will depend on the types of solutions identified through the project. Within the Alpha phase, time has been included for OEMs/suppliers for insight into how solutions could be adopted and integrated into products. Engagement with the NGET Strategic Infrastructure team is also planned to enable new design options to be considered in design optioneering for new large scale transmission infrastructure development. This is detailed in appendix of Q6.

Associated Innovation Projects

- (●) Yes (please remember to upload all required documentation)
- ( ) No (please upload your approved ANIP form as an appendix)

Supporting documents

File Upload

SIF Alpha Round 4 Project Registration 2025-12-10 2_37 - 82.1 KB
SIF030_SIF Programme_Project Management Book_Dellta_Alpha2.xlsx - 2.1 MB
DELLTA Alpha - project structure.pdf - 235.9 KB

Documents uploaded where applicable?

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