SIF Alpha Round 3 Project Registration

Date of Submission

Mar 2025

Project Reference Number

SPEN_SIF_Alpha_LVOE

Initial Project Details

Project Title

LV Optimiser

Project Contact

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Challenge Area

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

Strategy Theme

Net zero and the energy system transition

Lead Sector

Electricity Distribution

Project Start Date

01/10/2024

Project Duration (Months)

6

Lead Funding Licensee

SPEN - SP Manweb Plc

Funding Licensee(s)

SPEN - SP Manweb Plc

Funding Mechanism

SIF Alpha - Round 3

Collaborating Networks

SP Energy Networks Distribution

Technology Areas

Active Network Management

Protection

Resilience

Fault Current

Fault Management

Voltage Control

Project Summary

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

LV protection relies on fuses, which are reliable but lack sensitivity. Using novel AI protection algorithms faults can be separated from LCT which traditional fuses could not. AI algorithms will also plan the location and sizing of LVOE solutions for optimal benefits.
LVOE will provide technical solutions to dynamically operate the network, allowing for the widespread introduction of LCTs.

Project Budget

£544,577.00

SIF Funding

£490,119.00

Project Approaches and Desired Outcomes

Animal testing (not scored)

- ○ Yes
- ◉ No

Problem statement

The UK's electricity network is undergoing significant shifts due to the growing integration of low-carbon technologies (LCTs). At the same time, Domestic Demand Side Response is an emerging form of flexibility which will be key in enabling demand to better correspond with supply.

This results in a higher utilisation of LV feeders, which leads to an increase in current and voltage drop along the conductors, affecting protection and power quality. Voltage drop increase can cause either overvoltage or undervoltage along the feeders. Due to these issues the Discovery phase focussed on LV 3 phase imbalance, however, it evolved as the literature review highlighted that LV networks are mostly protected with fuses, which are reliable elements but with limited sensitivity. Fuses must be selected to protect all the feeder length, so a low rating fuse provides better protection reach than a high rating fuse. However, economy electrification entails higher consumption and, consequently, the use of higher rating fuses at secondary substations.

The Discovery phase appraisal found that current systems cannot solve these problems. It has been proved that fuse-based protection would result in unprotected sections of the feeder or a relevant hosting capacity reduction in lines longer than a few hundred meters. Similarly, the imbalance of loads and generation, typical of LV networks, play a significant role in these problems. With loads clearly lower than the conductor capacity, the average of the three voltages is sufficient at the end of the feeder and the problem can be solved by balancing the voltages. Therefore, in most cases, expensive reinforcement is not necessary since cheaper solutions can be implemented. Furthermore, since voltage variations are acceptable at the beginning of feeders, correction measures cannot be taken close to secondary substations, but after a few hundred meters. The effect of imbalance is additional to voltage variations caused by three-phase loads.

Specific solutions for distribution networks have been identified:

Feeder Protection

Either at the beginning of the feeder or in a point of the feeder upstream from the inadequate protection.

Voltage Control

Applied where the problems take place, which requires installation at the middle or end of feeders.

New effective operation principles must be developed, coordinating network and customer protections, to obtain affordable solutions, based on low-power equipment adapted to physical location conditions.

This project aims to contribute to Challenge 2, specifically.

2.1 Novel market and technical approaches to cost effectively minimise renewable energy curtailment.
2.2 Leveraging disruptive computing technologies for improving system visibility, performance, and cyber-security.
These will be met by installing a selection of novel modular LV power electronic devices (PEDs) as technical solutions to enable dynamic network operations and reconfigurations, allowing mass adoption of LCTs whilst optimising network operations. (2.1) and utilising disruptive computing technologies for LV network planning of the customised PED to ensure improved performance. (2.2)

LV network engineers require reliable. intelligent automated protection without relying on intensive communication infrastructure under abnormal or extreme operational conditions. This evolved need can be fulfilled by comprehensive, real-time analytics, incorporating AI and machine learning for predictive insights as proposed by LVOE.

Innovation justification

LVOE will demonstrate novel and ambitious innovation by developing the design of an AI fuse, which can protect radial LV feeders, with high penetrations of LCTs, and maximise the benefits of the AI protection, by coordinating with LV STATCOMS, on difficult to treat networks. The AI fuse is low cost, easy to install and fit & forget, making favourable for rollout in very large volumes. SP Energy Retail have been included as the renewable partner after wide market engagement.

This project builds on insights gained from innovation projects, such as LV Engine (SPEN), FUN-LV (UKPN), and Active Response (UKPN), by taking the learning to optimally size, rate, and place LV PED on radial feeders. The learning will be taken for trial operational performance reports. The SIF Discovery phase developed a novel control algorithm, for an LV optimiser, which addresses LV voltage quality and imbalance. In Alpha, the learning will be used to find similar PED, capable of responding to the new requirements, able to suit the selected location, also considering appropriate sizing and technical specifications. It will adopt a comprehensive approach to hosting capacity, involving the use of AI applications, edge computing devices (reliable embedded systems) and power electronics to cover several aspects with proposed solutions:

Protection of LV networks against short circuits, overloads and fire risk prevention.
Voltage control of feeders, considering imbalance, load increase or generation.
LVOE solution design, for improving the condition of LV network for flexibility and vice versa, CBA for accommodation and facilitation of customer behaviours with LCTs.
Planning tools for the deployment of solutions in complex generation and demand scenarios.
LVOE does not fall within categories set out in other funding areas, such as BEIS Net Zero Innovation Portfolio or DESNZ Public Sector Decarbonisation Scheme. The SIF should bring LV PED and AI fuses to BaU and commercial readiness.

SP Manweb has been working with Bcare, as technology developer, and key LV PED experts, from previous innovation trials, to promote, challenge and refine the SIF Alpha LVOE Project, through engagement and review of the Alpha Project scope, plan and outputs. The process has provided transparent scrutiny, which has ensured the project is not an incremental innovation, but a significant step forward when compared with traditional solutions and Network Innovation Competition PED trials.

The key innovative aspects are a holistic solution for the deployment design and planning for LV devices strategically installed at the middle or end of feeders (opposed to conventional substation-focussed solutions), including:

Local power electronic devices (PEDs) applied for voltage control for LCTs where the problems of phase imbalance and voltage quality take place.
Intelligent feeder protection applied either at the beginning of the feeder or in a point of the feeder upstream the point with inadequate protection.
To address issues caused by LCT uptake, the above innovation is opposed to the current counterfactual of installing larger capacity fuses (which risk not tripping and overheating, during a transient faults) and graded fuses at new feeder locations, which will be more costly and increase the operational burden on LV operational engineers.

The proposed 6 months Alpha-phase Project as a follow-on from the successfully completed Discovery phase, is requesting funding of £500k. This scale is determined by allowing initial simulation study and case identification. Therefore, it is the most appropriate for this project and associated risks before the Beta Project can be developed. The TRL, CRL and IRL of LVOE will rise from 2-4 to 4-6 based on the work undertaken in the Alpha and Beta stages of this project, should it be successful in achieving its aims.

Impact and benefits (not scored)

Financial - future reductions in the cost of operating the network

Financial - cost savings per annum on energy bills for consumers

Financial - cost savings per annum for users of network services

Environmental - carbon reduction – indirect CO2 savings per annum

Revenues - improved access to revenues for users of network services

New to market – products

New to market – processes

Impacts and benefits description

Our CBA provides a clear indication of the size of the great potential of this technology with the £600m for the GB customers. These £600m benefits include:

- Financial (investment saving): £318m
- Societal (customer revenue gains): £255m
- Environmental: £38m

Financial Benefits

The key objective for the LV Optimiser Alpha stage, is to provide a technical overview on how a LV STATCOM and an AI fuse will be coordinated, to release maximum technical benefits for LV network operators and for customers. To assess the potential value this combination of technologies, a conservative Cost Benefit Analysis (CBA) has been carried out and scaled for a GB wide implementation to provide a nationwide benefit estimation.

Through the CBA process, key input variables, affecting the CBA Net Present Value (NPV) have been determined and compared with the baseline approach, such as avoided reinforcement and operations costs, which have shaped the Alpha Project Work package deliverables, to provide evidence for the potential benefits of the innovation project.

To estimate the number of devices rolled out it has been assumed that the AI fuses will eventually be installed on radial networks requiring intervention, with feeders longer than 250 meters. Just over one in ten of these feeders are estimated to eventually host an LV STATCOM. The traditional reinforcement cost is calculated based on the average cost of different traditional solutions for feeder reinforcement as per ED2 load related investments. One intervention resolved by the traditional reinforcement by using multiple fuses will be £16k whereas an AI fuse will only cost £7k. These assumptions reflect the facts that the AI fuses are low cost, effective, fit and forget devices, and LV STATCOMs can provide further value in difficult to treat 'AI fused' networks.

For the GB roll out calculation, all other DNO license areas have been included where the predominant LV network configuration is radial. These areas include the WPD and SSE networks supplying a total of 6.9m customers.

Comparing the LV Optimiser and counterfactual deployment expenditures, the solution provides CAPEX and OPEX savings over the deployment and operating period of the device. Additionally based on historical examples, there are savings associated with the reduction in customer minutes lost (CML) and customer interruption (CI) reduction.

In summary, AI Fuse and LV STATCOM solutions are calculated based on the device prices and operational costs rolled out till 2050. The expected net financial benefit for the conservative approach is {317.6m for GB-wide approach.

Societal

Distributed Energy Resource (DER) penetration of solar photovoltaics is taken into consideration as a sensitivity study. Based on the studies carried out in Denmark, 5% to 40% more of PV generation can be integrated without triggering reinforcement, when STATCOMs are installed on the LV network. This can be estimated to be £10k per annum per feeder, providing additional income for our community, based on a 20% uplift on a LV network fed by a 100kVA secondary transformer. Benefit is computed using a capacity factor of 33% and a single feeder. The expected net societal benefit for conservative approach by 2050 across GB is £254.5m.

Environmental

Carbon reduction can be measured by the renewable electricity generated due to earlier access to the network and the reduced emissions associated with deferred/eliminated need for LV STATCOM reinforcement. The expected net environmental benefit for conservative approach across GB is £37.8m.

Teams and resources

SP Energy Networks (SPEN) operates three registered licensees, SPT, SPD and **SP MANWEB PLC**, the electricity distribution licensee for the Merseyside and North Wales network, **in which this project will be completed.** SPEN's Innovation Team is devoted to driving innovation into the heart of the organisation. The team has secured funding for major flagship national innovation projects with over £100m funding total. **These include Predict4Resilience, LV-Engine and ENSIGN. SPEN will act as the lead network operator and project manager for LVOE. James Yu, Head of Innovation and Project Manager** will lead the project, he has a successful track record of project management. Sophie Sudworth, **Head of Design and**

Development, will sponsor this project on behalf of the organisation. The SPEN team are responsible for Project Management (**Work Package 5**).

The University of Glasgow has a high reputation for quality research. The UofG team is based in the Energy and Sustainability research group and the newly launched Glasgow Centre for Sustainable Energy. The group focus principally on the efficiency of energy generation, supply, conversion, transport, distribution, and storage technologies. **Dr Jin Yang** and **Professor David Flynn** have extensive research experience in the field of electric power with research practices combining computer modelling and simulation, advanced analytics, experimental validation for modern electricity networks, with new technologies such as AI, machine learning and digital twins for energy systems applications. The team has completed relevant UKRI/EPSRC, NIC/NIA, SIF projects with network operators, integrating learnings from previous endeavours. UofG team will lead W**ork Packages 3 on flexibility assessment for LV operational impacts and 4** on the planning tool design and review of AI technologies and their applications to **Work Package 1 on LV network protection**. For the Alpha phase studies, funding is required for **validation** work using dedicated facilities including computers (high specification PCs) for modelling and software licenses for simulation studies (IPSA and Matlab toolboxes).

Bcare was founded in 2018. It is based in the Basque Country, Spain. **Javier Olarte**, one of the founders and key resources for this project is a visionary leader bringing over 30 years of experience in design, development, production, marketing and after-sales service of **power electronic systems**. Bcare has established a trusting working partnership with SPEN. **Bcare** will act as an expert in hardware/software design and development, and will provide the knowledge, technical means and team to guarantee success of the project. The Bcare team are responsible for **Work Package 1**, AI Protection of LV networks and **Work Package 2**, Edge solutions for imbalance and voltage control of feeders. Bcare will provide testing and simulation labs prototypes to comply with the edge imbalance voltage control solutions.

ScottishPower Energy Retail joined the project after engagement with renewable project developers and suppliers across the industry. SP Retail were prepared to partner for the Alpha phase to help provide insight into **Work Package 3**, specifically the impact of LCT flexibility and customer behaviours. SP Retail will be represented by their Smart Solutions team who are developers of Solar PV, EV charging and heat pump solutions for domestic and commercial premises.

Francisco Pazos has over 30 years' experience in distribution network operation, power quality and **power electronic devices**. He will serve as an industrial adviser, as part of the in-kind support from ScottishPower Corporate, to review and safeguard the project delivery, quality, and supplier engagement.

During engagements for the Renewable Project Developer, SPM engaged with multiple LCT and flexibility suppliers. They expressed interest in the project and will have representatives from their business included on the LVOE Steering Board. Their industry expertise and consultation will be vital to the correct steering and guidance of the project.

Project Plans and Milestones

Project management and delivery

The SP Manweb Future Networks team has a strong track record of leading SIF projects. The project manager will be supported by a pre-established PMO, who will integrate structure and provide support and guidance during delivery.

The project will focus on the following for risk management. Prevention, Communication and Coordination. Prevention, Steps will be taken to mitigate risks to reduce likelihood; Communication, the consortium will communicate at the first incidence if a situation occurs; Coordination, the consortium will collaboratively agree on the best action to reduce further risk.

The PM process, policies and systems fully meet the requirements of ISO9001 (quality), ISO14001 (environment), ISO27001 (information security management) and ISO45001 (occupational health and safety). The team will utilise Project Management applications, to plan the project and catalogue importance.

All project tasks described, have been assigned to a lead organisation, who will be responsible for undertaking the associated activities and report to the SP Manweb PM, who in turn reports to a Project Sponsor and the LVOE Steering Group, providing support, expertise, challenge, and governance.

To effectively address the technical challenges, we have created a strong partnership and steering group (partners and engaged collaborators), providing expertise in LV network, renewable and other LCTs technologies integration, power electronics and power quality, effective operation principles and coordinating network and customer protections, Advanced AI algorithms for optimisation.

The partners will utilise suitably qualified and experienced personnel for delivery.
The allocated resources will range from junior graduate level employees up to senior delivery managers ensuring the best value for money in the delivery of this project.

1. Project Plan, Key Deliverables and Milestones

The project plan has been broken down into five Work Packages (WPs) as detailed below, with the Alpha phase high level project plan, partner leads, Gantt chart and deliverables detailed in the Appendix.

WP1 AI Protection of LV Networks

D1.3: Final Design Specification for AI protection. **M1.3** Completion of Final Design Specification for AI Protection.

WP2 Edge Solutions for Imbalance and Voltage Control of Feeders

D2.4: Final LVOE solutions for accommodation. **M2.4**: Final specifications of LVOE solutions completed.

WP3 Flexibility Assessment for LV Operational Impacts

D3.3: CBA of LVOE solutions for accommodation and facilitation of customer behaviours' with LCTs. M3.3 CBA Completion.

WP4 AI Planning tools for the deployment of LVOE solutions

D4.4: Final Design Specification: LVOE selection and location tool applicable to a whole distribution network: **M4.4** Completion of Final Design Specification.

WP5 Project Management

D5.4: Knowledge capture and dissemination: **M5.4** Knowledge capture and dissemination plan completed.

D5.7: Project Management Report: **M5.7** Project management report completion.

2. Dependencies

Work Package dependencies are highlighted in the Gantt chart, but to highlight the main interdependencies:

1. Deliverable **D3.3 and D4.4.**
2. The **Dissemination milestone** is dependent upon **D1.3, D2.4, D3.3 and D4.4.**
3. All deliverables have an upon completion milestone which will allow for funding to be assigned to a deliverable. This is reflected above and in the project plan.

We have developed a Risk Register with **R6** (project setup time) as the highest key risk. All risks are detailed in the PMT. Regular reviews will be conducted with project partners, informed by appropriate technical specialists.

There are no planned/unplanned supply interruptions for the Alpha phase.

The project will **not directly interact with energy consumers** in the Alpha stage. A commercial rollout of AI fuses and LV STATCOM will result in less outages on LV feeders, when compared with base case LV feeders, which could have multiple LV fuseboards and traditional reinforcement measures installed to meet greater LCT loads connecting to the LV network. This would impact positively with present and future customers.

Key outputs and dissemination

The purpose of Alpha is to demonstrate the techno-economic viability for the LVOE technology. Our **key outputs** in the Alpha phase will be the specifications and prototype of 8 products (Software, Firmware and Hardware):

- Protection of LV networks against short circuits, overloads and transient fault induced fires in the substation. **Four products:** AI protection algorithm, to be demonstrated in secondary substations (Hardware: AI boards), feeders (Hardware: AI reclosers) or as a function in power electronics devices (Hardware: AI static breakers).
- Voltage control of feeders, considering imbalance, load increase or generation.

Three Hardware products, to have cost-effective solutions to cover different scenarios (LV Optimiser, Dynamic Voltage Optimiser and Smart ZigZag).

- Planning tools for the deployment of solutions in complex scenarios. LVOE planning tool (Software).

Our Alpha phase will assess the benefits of each of those products and inform the potential Beta trial.

SP Manweb are responsible for WP5 and ultimately full project delivery, to standard and schedule. SPM will also engage cross industry, specifically with other energy networks.

University of Glasgow is responsible for delivering WPs 3 and 4 as listed below, as well as disseminating key academic research outputs via academia communities such as presenting at international conferences and potential publications in top journals.

Bcare is responsible for delivering WPs 1 and 2 as listed below, as well as disseminating key research outputs via potential customers communities as well as providing the optimum designs for the LVOE technologies.

SP Retail will work alongside University of Glasgow on WP3 supporting the flexibility assessments and dissemination and engagements with other LCT and flexibility suppliers.
Dissemination plan:

Dissemination plan:

LVOE is planning knowledge dissemination at UK and international levels:

1. Research collaboration with other innovation bodies (Iberdrola i-DE group in Spain)
2. Talks at international professional and academic conferences, e.g. CIRED, CIGRE, IET AC/DC; SIF Show and Tell; SIF Webinars.
3. Seminars organised via involved professional bodies, e.g. The IET Power Networks Committee.
4. SPEN will present learnings across the industry to other DNO's at events such as the Energy Innovation Summit.

The Work packages will have **6 public reports** as deliverables, which will be shared on the Smarter Networks Portal following final review. SPEN will host an LVOE Webinar and workshop at the end of delivery, which will be recorded and hosted on the Smarter Networks Portal and SPEN innovation webpage.

The Work Plan to warrant those outputs include:

WP1 Will review existing LV network protection requirements and expand to carry out coordination calculations considering complex operational scenarios. Resulting in a selection of appropriate AI algorithms.

WP2 Development and testing the imbalance reduction principles using Hardware in the Loop testing for LV Optimiser, Smart ZigZag by Lab Prototyping and the Dynamic Voltage Optimiser will be simulated and resulting in full design specifications.

WP3 An analysis into LCT increase and its impact on the network, specifically focusing on customer behaviours regarding flexibility and the benefits to flexibility from LVOE solution installations. This will result in a CBA.

WP4 The LVOE solutions will be embedded into software programmes to develop the AI so it can decide the optimal sizing and location of LVOE solutions. This will be developed to a set of AI algorithms capable for application to a full radial distribution network.

WP5 Will ensure delivery on-schedule and to high standard. This will involve weekly meetings, project steering board establishment and risk reviews. A dissemination plan will be drafted and acted upon throughout and beyond Alpha. A final report will review Alpha phase performance.

Commercials

Intellectual property rights, procurement and contracting (not scored)

All partners will comply with the requirements set out in Chapter 9 of the SIF Governance Document. Where applicable, we will list background IP in our collaboration agreements with each partner. SP Energy Networks is using the default arrangement for the Alpha stage.

None of the Project partners have stated they are intending to use subcontractors to complete their work packages.

Commercialisation, route to market and business as usual

The general innovation commercialisation strategy can be broken down into two constituent parts, by technology push and end-user pull:

1. **Technology Push** is being managed by public and private partners University of Glasgow and Bcare, who will optimise the design of software, hardware, and network control philosophy, taking onboard the latest engineering developments and operational needs from DNOs, SP Energy Networks, and ScottishPower Retail. In making the design to inform a prototype, **the specification would have been consulted and signed off by SPEN**, so that the practical issues, such as size of the hardware, access and Health and Safety would have been considered in Day-1. This exercise will also ensure the policy development for future roll out.
2. **End-user Pull**, is being managed by SPEN and supported by SP Retail, to challenge the technology boundary with a clear purpose to improve its competitiveness and facilitate its application at LV. Network licensees, owners and operators will be the primary customer segment for this innovation, and they could own, operate, and purchase LVOE type products following a successful Beta phase delivery. The project team has been maintaining a transparent and open stakeholder engagement to **maximise the awareness** of this technology and **increase its impact** on the GB plc in general. In additional to the partners, we have actively engaged with other UK retailers such as OVO and Octopus.

Each partner has their clear scope and responsibility in the future roll out.

SP Energy Networks: Will transition to BAU through its executive sponsor the **Head of Design and Development** for SP Manweb: **Sophie Sudworth. In approving the proposal**, SPEN has gone through a complete process to secure business buy-in including the potential trial in **Merseyside. Therefore, the learning will inform our RIIO-ED3 business plan.** SPEN will engage with other DNOs such as UKPN who are also leaders in PED technology. SPEN will also seek DNOs such as UKPN who experience these similar problems to participate in future phases and as steering board members to ensure wide-spread rollout across the UK Networks.

University of Glasgow: Will explore opportunities funded by the UKRI/EPSRC via awarded £3.2m Impact Acceleration Account (IAA) for the period from April 2022 to March 2025. UoG also offers courses and workshops on entrepreneurship, innovation management, and business development to equip researchers and students with the skills needed to commercialise innovations.

ScottishPower Retail: As installers of low carbon technologies and providers of demand side flexibility services offering nationwide coverage, ScottishPower will encourage DNOs to adopt the LVOE solutions to increase hosting capacity on LV networks. This will become increasingly applicable as the installation rate of solar PV panels and air source heat pumps ramps up and clusters develop on LV feeders. Adoption of the solutions could play an important role in facilitating the rollout of multiple LCT measures for customers in social housing developments, enabling more low income and vulnerable customers to benefit from green and affordable energy.

Bcare: will develop simulations and prototypes to validate compliance with specifications and target costs and in the Beta phase will commercialise, manufacture, and deploy the equipment in the selected locations. Bcare's design, and development of the PED specifications will allow SPEN to rollout to further BAU solutions. Their expertise as a leading technology developer in Europe will enable a solution that is applicable in not just GB but further afield.

Policy, standards and regulations (not scored)

For the Alpha Phase of LV Optimiser and the foreseeable future, the consortium does not for see any government policy changes, decisions, or standards to be altered.

The project is not using a work package to better understand policy, standards, or regulatory barriers.

The Lead network does not predict the requirement of any derogation or exemption for future project phases now.

Value for money

The project is requesting **£490,119 of funding (90% of the total cost)** of the total budget at £544,577, with the remaining **£54,458 (10% of the total cost)** being contributed by project partners.

This is a proportional and value for money invest for the public R&D. The consortium has been thoroughly going through the process and ensured:

1. The selection of right partners to safeguard the success of this project. We believe that the most 'value for money' is the on time and on budget completion of our SIF-Alpha, which will place a solid foundation and further de-risk the coming SIF-Beta.
2. The leveraged knowledge from the consortium. SP Energy Networks, Bcare and University of Glasgow have each carried out related work to inform the concept and scope of LV-Optimiser. Those efforts represent over £4m previous investment from both the public and private sector. As detailed in 'Project Team', we would also be able to access to programmes such as IAA (Impact Acceleration) during the Alpha delivery.
3. In-kind support to meet the SIF Governance.

The expected **net benefits** for the conservative approach including financial, societal, and environmental is £600m GB wide. Considering these substantial benefits the low cost relative to traditional reinforcement and the "fit and forget" approach, LV Optimiser will provide significant value for the customer's investment.

SP Manweb PLC:

Total costs: £55,860
SIF funding: £50,724 (90%); Contribution: £5,586 (10%)
Contribution is coming from the innovation team efforts on project management and our frontline engineers on the design of trial for future phases.

University of Glasgow:

Total costs: £176,795
SIF funding: £159,225 (90%); Contribution: £17,680 (10%)
Contribution is coming from the Project Lead Experts' time, computing and simulation use.

Bcare:

Total costs: £256,922
SIF funding: £231,230 (90%); Contribution: £25,692 (10%)
Contribution is coming from Bcare design engineer time spent on the project and laboratory facility use.

SP Energy Retail:

Total costs: £55,000
SIF funding: £49,500 (90%); Contribution: £5,500 (10%)
Contribution is coming from the lead engineer and his expertise on the flexibility market; feeding into the specifications.

The Alpha phase is providing Value for Money to customers by **utilising facilities** as part of the in-kind contribution from **Bcare and University of Glasgow** for the design and testing of the future LVOE solutions and AI protection and Planning tools. Similarly, **ScottishPower HQ** will be available for project meeting, **free of charge**, if required by the consortium.

The consortium is using a variety of resources for project labour ranging from graduate to senior experts this will provide the best value for money. SPM's day rate is blended which ensures value for money as it is representative of the quality provided. Each organisation has travel policies ensuring that the minimum will be spent on Travel and Subsistence costs.

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 3 Project Registration 2025-03-04 11_54 - 92.4 KB
SIF Alpha Round 3 Project Registration.pdf - 91.3 KB

Documents uploaded where applicable?

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