SIF Alpha Round 2 Project Registration

Date of Submission

Jan 2024

Project Reference Number

NPG_SIF_006 (1)

Initial Project Details

Project Title

Artificial Forecasting

Project Contact

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Challenge Area

Preparing for a net zero power system

Strategy Theme

Data and digitalisation

Lead Sector

Electricity Distribution

Project Start Date

01/10/2023

Project Duration (Months)

6

Lead Funding Licensee

Northern Powergrid

Funding Licensee(s)

NPg - Northern Powergrid (Northeast) Limited

Funding Mechanism

SIF Alpha - Round 2

Collaborating Networks

Northern Powergrid

Technology Areas

High Voltage Technology

Commercial

Modelling

Project Summary

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

Add Preceding Project(s)

NPG_SIF_007 - Inform

Add Third Party Collaborator(s)

Oak Tree Power Ltd

EV Dot Energy Ltd

Faculty Science Ltd

Project Budget

£522,000.00

SIF Funding

£468,000.00

Project Approaches and Desired Outcomes

Problem statement

As DNOs develop their DSO functions, the existing annual load forecasts at extra-high-voltage (EHV)/ high-voltage (HV) need to become increasingly granular, down to the hourly level to support flexibility dispatch. Moreover, the increasing prevalence of low-voltage (LV) monitoring data enables new use cases to support network planning and LV flexibility at ED3. The Artificial Forecasting project addresses these unmet needs by developing innovative AI solutions to forecast load at primary (EHV-HV) and secondary (HV-LV) substations, providing new capability to support NPg's DSO functions. By promoting market-based solutions over reinforcement, the project will deliver considerable efficiencies to benefit network customers.

At Discovery, the perception of the problem statement evolved in three main ways:

Decision-making integration: user research identified the decisions to be optimised through an integrated forecasting solution, in particular the role of forecasts in identifying the need for flexibility services.
Showcasing value: the project identified an opportunity to support DNOs in adopting LV monitoring data use cases, by modelling the impact of new connections and supporting LV flexibility at ED3.
Technical scope evolution: Discovery evolved the technical scope into three challenges, separately forecasting i) gross and ii) net demand at EHV-HV, isolating the impact of connected generation and maximising accuracy; a novel approach relative to existing works, and iii) developing month-ahead forecasts at HV-LV, to assess the impact of new connections and support flexibility at ED3.
The project itself evolved from a conceptual challenge to developing a clear plan for testing competing solutions at Alpha. This was achieved through:

User research with NPg forecasting, flexibility and innovation teams, to refine the problem statement and identify user needs. This highlighted the direct benefits for forecasting teams and flexibility procurement, for example highlighting how forecasts can improve accuracy of flexibility procurement nearer to the time of use.
Data analysis: To understand technical feasibility, NPg and Faculty conducted exploratory data analysis to examine data quality and other characteristics. This included load data from NPg's primary and secondary substations, together with external sources (e.g., weather). This confirmed the applicability of the data to address the three scope items.
Technical approach: Building on these findings, Discovery identified innovative AI methods to develop week and month-ahead load forecasts at the EHV-HV and HV-LV levels bespoke to each scope item, highlighting their relative strengths and weaknesses and forming a clear testing plan for Alpha.
The project aligns closely with the Preparing for a Net Zero Power System Challenge. NPg currently rely on long-term, assumptions-driven load forecasts to inform flexibility decisions, leading them to procure months in advance. Providing accurate forecasts on operational timescales can identify near-term flexibility need, facilitating dynamic procurement closer to the time of use, and supporting an innovative digital marketplace for these services. This will create new revenue streams for flexibility providers, stimulate further integration of novel assets critical for system stability, and maximise efficiencies for customers. At Alpha, Oaktree Power and EV.Energy have been onboarded to understand the technical capability of such assets and the commercial opportunities this could bring.

The project is expected to directly benefit end-users at DNO forecasting and flexibility teams. At Discovery, the understanding of user needs has evolved from simply improved forecasting capability, to how these can be actively integrated into flexibility procurement and support the development of a digital marketplace; this has actively informed the forecasting method and time-granularity for each scope item. Existing and prospective flexibility providers are also expected to benefit from the project outcome, as NPg can tailor procurement models to their needs. Fully harnessing such assets will decrease operational risks to networks, optimise reinforcement costs and deliver considerable efficiencies for customers.

Innovation justification

Challenge: preparing for a net zero power system: supporting the safe and reliable operation of a net zero power system by 2035.

The project directly addresses the theme area of accessing grid or system support from novel supply and demand side sources, by developing AI forecasting solutions to inform flexibility procurement. It satisfies the eligibility criteria on funding, partner contribution, start date and duration, including partners who are aggregators with a portfolio of demand-side resources including electric vehicles charging points and demand side response. Faculty, as a disruptor in data science, will lead development of the technical solution.

Lessons for Alpha: Discovery provided strong evidence to continue into Alpha, reflecting stakeholder feedback. Consideration of the innovation landscape, user research and exploratory data analysis confirmed the user needs, deliverability and risks associated with developing these forecasting capabilities. The project scope has been refined to reflect these findings.

Stakeholder engagement: NPg's planning and operation functions depend on accurate/timely data, and internal users from forecasting, digitalisation and flexibility were consulted in Discovery to validate and refine use cases. External stakeholders are increasingly concerned with the information NPg's forecasting data can provide, flexibility service providers have been consulted in Discovery and two partners are joining the Alpha Phase as a result.

Innovation: This project rigorously implements state-of-the-art AI methods for load forecasting. DNOs have carried out innovation work in load forecasting (NPg NIA_NPG_012: Improving Demand Forecasting, ENW NIA_ENWL_020 Artificial Intelligence and Machine Learning, UKPN NIA_UKPN0070 Envision, and SSEN SSEN_0 Transition).

This project tests a wider set of AI methods relative to previous work, reflecting state-of-the-art machine-learning forecasting techniques. It also undertakes a novel approach to forecasting HV net demand, by separately estimating gross demand and distributed generation. This overcomes a significant shortfall in existing studies which treat net demand as a single time series; methods that will become inaccurate as distributed generation assets increase in scale and volume. It also develops forecasts using LV monitoring data, a nascent area of work across the sector. The appendix sets out these methods considered in further detail.

TRL, IRL, & CRL

TRL 4; by testing the technical/commercial application of forecasting models.
IRL 2; Alpha will define how forecasts will be integrated into NPg systems
CRL4/5; Alpha will develop the Value Proposition and refinement of the product hypothesis
Size and Scale: AI has already impacted ways of working; however, much can still be learnt. Network operators have identified where AI can increase capabilities and begun to test applications. Innovation is needed to de-risk future applications of AI in utilities, by building up the evidence base of successes and failures. AI adoption in the medium-term will benefit from due consideration at this point. The scale of the project meets SIF requirements and is proportional to the requirements to rigorously test AI solutions.

Funding/BAU: Along with other licensees, NPg will incorporate AI methods into their processes over the coming years alongside implementation of the Digitalisation Strategy and Action Plan. The benefits from introducing AI methods will be magnified by the foundational work undertaken within this SIF project, which develops capability at a speed and rigour over and above current plans, and potentially unlocks further related innovations (e.g., flexibility digital marketplace).

Counterfactuals: To enable DSO functions, existing annual load forecasting methods must become increasingly granular to support flexibility dispatch. Without further innovation, existing methods could be broadened to create greater spatial and temporal coverage, however it would require a significant increase in workforce to run similar tools to produce the greater volumes of information required. This is not a feasible solution at scale.

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

Environmental - carbon reduction – indirect CO_2 savings per annum

Revenues - improved access to revenues for users of network services

Revenues - creation of new revenue streams

Impacts and benefits description

Pre-innovation baseline: The innovative AI forecasting solutions within this project represent a critical enabler of NPg's DSO functions, providing new capability over and above business-as-usual (BAU). The baseline therefore reflects BAU expenditure line items set out in NPg's ED2 DSO strategy from 2023-2028. BAU expenditure is phased using the rate of asset investment as a proxy.

To estimate BAU expenditures over ED3, a conservative uplift of 5% was used to estimate aggregate expenditure relative to ED2, reflecting the additional costs associated with managing an increasingly complex network.

The baseline therefore covers the period 2023-2032, the period for which reasonable foresight can be provided. Where possible, assumptions will be amended at Alpha as new information becomes available (e.g., ED3 planning).

The baseline scenario therefore includes costs/savings line items associated with:

Network interventions, predominantly reinforcement costs
DSO strategy investment in skills and systems
LV monitoring rollout expenditure
DNO-contracted flexibility (savings/expenditures)
Flexibility market stimulation investment
Expenditures associated with asset outages
Tracking: Baseline expenditures/savings through ED2/ED3 can act as an aggregate metric to compare the scale of realised benefits. For network reinforcement decisions and in procuring flexibility, NPg also assesses the relevant opportunity costs (cost of the next-best option), which can track costs/savings enabled by AI forecasting tools relative to alternatives, per intervention. This can provide a bottom-up estimate of the benefits enabled through innovative forecasting solutions.

The core technical performance of AI load forecasts will be benchmarked to a baseline metric per model (e.g., versus linear extrapolations or assumptions-based methods) to demonstrate proof-of-value relative to existing approaches. A tangible success criteria would then represent their adoption within decision-making, including HV flexibility procurement and LV operational planning.

Quantified benefits to date include:

i) Reduced costs of operating the network

Reinforcement: Accurate HV/LV load forecasts enable more efficient flexibility procurement and targeting of reinforcement spend, estimated at 3% of HV/LV reinforcement capex. (£27m benefit total 2023-32, pre-discounting and inflation)
Outages: accurate forecasts enable more efficient procurement of market-based solutions and targeted asset maintenance, avoiding asset outages (£11m).
Flexibility: Operational forecasting enables dynamic procurement closer to the time of use, and the development of a digital marketplace for such services, delivering both better outcomes and efficiencies relative to tender-based methods. (£8m)
Low Voltage: (£9m) resulting from improved targeting of LV monitoring rollout and the implementation of forecasting models to support new connections, promoting further cost deferral specific to LV.
ii) Cost savings

Resources: Expanding current manual approaches in the absence of integrated AI forecasting solutions would require considerable labour costs, estimated at £0.5m annually conservatively. In practice, the resources required to expand existing methods on a substation-by-substation basis at HV/LV could be considerably higher.
Further net benefits, for example through solutions facilitating 'green' asset connections (e.g. EV/PV, driving CO2e contributions) and new revenues for flex providers will be quantified at Alpha, leveraging flexibility partner input. Flexibility partners can benefit through the development of dynamic procurement models closer to the time of use (enabled by operational forecasts), and the development of a digital marketplace for these services, which can stimulate market growth and new revenue opportunities.

The 10-year NPV (NPg-level) is estimated at £31.82m, whole-life NPV £43.84m. The additional investment required to facilitate these benefits relates only to the innovation funding through to the end of Beta.

Benefits realised to date include a centralized understanding of HV/LV monitoring data, and how AI solutions can be applied to network decision-making. Socializing learnings across partners has highlighted related projects and activities at other DNOs, and identified a clear innovation gap for this project to address.

Teams and resources

Partners/skills:

Northern Powergrid owns and operates the distribution network in the northeast of England, powering 3.9 million homes and businesses.

Role: NPg are end-users of the solution and will reprise their lead partner role at Alpha. This involves critical responsibilities: providing access to end-users, sector and forecasting expertise, information sharing, and systems access.

Skills: NPg has full relevant capabilities including traditional load forecasting, network planning, design and delivery, and the integration of sustainable, low carbon solutions.

Faculty Science Limited designs and implements custom AI systems for critical national infrastructure, and have delivered 400+ projects across government and enterprises, including the AI software behind the NHS's covid response.

Role: Existing relationship. Continuing from Discovery, Faculty will lead development of the technical forecasting solution. This also includes facilitating user research to optimise the integration of solutions into decision-making.

Skills: The Faculty team incorporates PhD data scientists and engineers to provide requisite capability to develop, test and integrate AI solutions, including prior SIF involvement (SGN/Utonomy Intelligent Gas Grid), which has progressed to Beta.

EV.Energy operates a cloud-based platform to optimize EV charging schedules, for a greener, cheaper and simpler solution, including a Virtual Power Plant platform to provide EV-based flexibility. Voted Free Electron's world's best startup 2019 and are Innovate UK grant recipients.

Role: New relationship. Partner validating how forecasts can be embedded to optimize flexibility procurement, on the timescales necessary for aggregators.

Skills: EV.Energy develop the digital infrastructure to transform the energy grid; this provides the required software and technical subject matter expertise into this work.

Oaktree Power implements cloud-based AI solutions to reduce energy consumption, lower energy costs and decrease energy wastage, empowering building owners to reach net-zero faster and provide Demand Side Response (DSR).

Role: New relationship. Validating how forecasts can optimize flexibility procurement across a range of assets.

Skills: Oaktree brings subject matter expertise in the field of flexibility provision, operating solutions targeted at demand-side response, providing requisite expertise.

Partner evolution: EV.Energy and Oaktree Power have joined the project given the evolving direction of the project, the needs of DSO flexibility procurement users, and the vision to create a digital marketplace for such services. These providers have also been selected given the diversity in the assets operated. Due to team constraints, UKPN will not reprise their role as network innovation partner, however have stated an intention to join at Beta, should Alpha demonstrate the planned proof of value.

Roles: Northern Powergrid: Management will come from the dedicated Forecasting team, combined with NPg Innovation Managers - this mixes subject matter and administrative expertise.

Faculty staff a diverse team comprising commercial and technical expertise:

Project Director: provides senior oversight, with overall responsibility for delivery.
Commercial Senior/Engagement Managers will oversee development of project outputs and application of AI to meet commercial objectives.
Senior Data Scientist / Data Scientists will be responsible for methodology development and testing.
In-house Machine Learning Engineers will assess the optimal integration of a forecasting solution into decision-making.
EV.Energy and Oaktree Power: EV and Oaktree will each dedicate a grid-integration specialist / subject matter expert for this project, to provide the necessary critique and input throughout the work.

Alpha Resources: Solution testing will require access to NPg software systems; required processes will be completed at Alpha. Moreover, the training of ML algorithms will require increased compute resources relative to Discovery; such resources will be coordinated via Faculty's AWS instance. Wider users: The partner group provides a wealth of experience covering technical, commercial, network and innovation aspects. Other flexibility providers, networks and customers will benefit from successful implementation, however at Alpha the partners onboarded are proportionate to the expertise required.

Project Plans and Milestones

Project management and delivery

Work packages and dependencies

The core objective at Alpha is to test the AI approaches identified at Discovery, to develop Proof of Concept (PoC) models to forecast load at primary (EHV-HV) and secondary (HV-LV) substations on NPg's network. Additionally, Alpha will develop a refined business case and implementation plan for Beta. These objectives will be delivered through four work packages:

WP1: Data collection and user needs (Lead: Faculty) Gathering the data and user requirements to develop the PoC models and update solution/front-end designs. This work package will be dependent on WP4, to ensure timely access to relevant datasets and Northern Powergrid systems.

WP2: PoC development and testing (Lead: Faculty) Developing and testing PoC models and associated user interfaces that can provide day to month-ahead forecasts of load at primary (EHV-HV) and secondary (HV-LV) substations on NPg's network. This work package will be dependent on WP1, to ensure timely collection of the data required to develop the models.

WP3: Business case development (Lead: NPg) Developing refined benefits assessment and Beta plan to prepare for the next phase. This work package will be dependent on WP1, to ensure timely access to relevant subject matter experts.

WP4: Project management & access requirements (Lead: Faculty) Facilitating project progress through day-to-day project management, strategic governance and UKRI project monitoring. This work package does not have dependencies.

The milestones comprising these work packages are set out within the Project Management Template.

Project management

The project will be delivered by a cross-functional team with members from each of the four project partners, to gather requisite subject matter and technical expertise and enable appropriate risk mitigations.

The team's approach to project management will be Agile, with cross-partner meetings held weekly to discuss progress, priorities and mitigate risks. Development of the technical methodology will include internal daily stand-ups at Faculty to identify next steps, backlog and blockers to progress; these can be extended to include partners where appropriate. Steering meetings will be held every 6-8 weeks to provide delivery updates and collect input from wider stakeholders.

The team will use a set of project management and technical tools to deliver the work, including Notion (project management software used by e.g. Amazon and Uber), Microsoft Teams (virtual meetings) and Faculty's state-of-the-art data science delivery platform Frontier. At Alpha, stage gates are not proposed, given a) existing work to date has broadly confirmed the readiness of the data and methods to be tested and b) the exploratory nature of data science work, which will be conducted throughout the full Alpha timescales to maximise chance of success. Should desired project outcomes not be achieved, the NPg steering committee will determine the appropriateness of progression to Beta.

Risk management strategy

Highest-impact risks at Alpha relate to data quality and pre-processing requirements (R4), the exploratory nature of data science (R5), technical implementation (R7) and ensuring alignment of the stakeholder group (R9). These risks will be monitored on an ongoing basis through weekly partner meetings and mitigated via risk-specific approaches detailed in the risk register. User research and stakeholder identification is planned at project outset to begin necessary processes and data identification as soon as feasible. Where risks cannot be fully mitigated, these can be escalated to wider NPg management or the UKRI monitoring officer.

Supply interruptions/consumer access

No interruption of services or supply to customers are planned during this project. Flexibility partners will be engaged to understand how solutions can inform optimised procurement of their services; indeed customers stand to benefit from improved energy service reliability through the role of flexibility in managing network load.

Key outputs and dissemination

Overarching Alpha objectives:

The objective of Alpha is to develop proof-of-concept AI models that demonstrate value by accurately forecasting load at EHV-HV (primary substations) and HV-LV (secondary), both through their technical performance but also their commercial application to the optimised procurement of flexibility.

At a high-level, the outputs enabling these objectives are:

Documentation of technical performance from the application of AI models to the EHV-HV and HV-LV forecasting scope items, that demonstrate improvements relative to an established statistical baseline.
Based on user research with DNO stakeholders and flexibility partners, development of a sample front-end interface/infrastructure linking the technical outputs to flexibility procurement decisions.
Development of a refined solution architecture and associated business case, providing the foundations for successful implementation at Beta.
These outputs will be supported by a set of project deliverables that together, comprehensively document the evidence underpinning each step, as set out below.

A successful Alpha will have therefore collected strong evidence that:

provides clear support for the continuation of the project into Beta, by confirming the technical feasibility and broader business value of the solution.
de-risks the Beta phase by clarifying how the solution should be further developed.
Key outputs and owners To achieve this end-goal, the Alpha phase will deliver 11 key outputs:

WP1

D1: User research report (Faculty), including key takeaways of user research sessions and updated solution design.

D2: Final data request (Faculty), consisting of the data sets that were collected for the development of the POC model.

WP2

D1: Report documenting test results of POC model (including front-end mock-ups) for Gross demand at EHV-HV (Faculty).

D2: Report documenting test results of POC model options (including front-end mock-ups) for peak Gross demand at HV-LV (scope 2) and Net demand at EHV-HV (scope 1.2), including next steps to take on both items. (Faculty)

D3: Repository of model code accompanied by a short report detailing the final modelling techniques per scope item, results and key considerations for model productionisation (including data flow visualizations based on solution architecture diagram) and deployment at Beta. (Faculty)

D4 & D5 (1 per flexibility partner) - Reporting documenting whether data from EV.Energy and Oaktree Power can be used at Beta and how flexibility partners could benefit from a solution similar to the POC model.

WP3

D1: Documentation of new benefit mechanisms defined at Alpha accompanied by the datasets required to update the calculation framework (NPg).

D2: SIF outputs: i) Updated benefits assessment framework and results based on the additional assessment mechanisms agreed and data collected in Alpha ii) Beta plan including timeline, workstreams and indicative key activities (Faculty).

WP4

D1: Solution architecture diagram including information security considerations relevant to successful project delivery. (Faculty)

D2: Risk register including updated status of risks and new risks that may have emerged. (Faculty)

Dissemination strategy

In the first instance, the key outputs will be shared among the project partners and UKRI via planned governance and monitoring meetings. Key outputs can also be made available on the ENA Innovation Portal; for example, a code repository that enables reproduction of the AI methods tested at Alpha. This will enable straightforward adoption of the learnings from this project by other DNOs looking to bolster their forecasting capability, in conjunction with the written documentation of lessons learned and testing results. To share learnings further, we would seek additional DNO partners at Beta, pending results of the Alpha testing phase.

Lessons learned will then be presented at relevant public forums including UKRI's Show and Tell webinars. Further dissemination will take place via the partners' respective communication channels, including websites and social media platforms where agreed.

Commercials

Intellectual property rights, procurement and contracting (not scored)

ll partners will comply with the standard arrangements in the SIF governance document.

Commercialisation, route to market and business as usual

Commercialisation plan

The ambition is to develop a commercial forecasting product that can be directly implemented into flexibility procurement decision-making at DNOs. At this stage, this is envisaged to incorporate the following steps across Alpha and into Beta:

1. Problem statement refinement: The first step to commercialize an AI software is to identify a clear target market and problem statement. User research at Discovery identified a clear need to augment the existing annual load forecasts at extra-high-voltage/high-voltage with increasingly granular techniques, at the monthly, weekly, daily and hourly level to support flexibility dispatch, to enable DSO functions. This challenge is applicable across the DNO sector both in the UK and internationally.

Alpha will build on this research to develop and test sample user interfaces vital for integration into business decision-making and engage with flexibility partners to understand how solutions can inform optimized flexibility procurement.

2. Develop technical product: The second step is to develop the core technical product components, which Alpha will progress by iteratively testing and training AI solutions identified at Discovery. Understanding the optimal methodology for each scope item, together with how these can be engineered to integrate with NPg's data infrastructure, represents a core focus at Alpha, with Beta focused on implementation and final iterations/user testing, together with building the infrastructure linking forecast outputs to flexibility decision-making.

3. Unique Value Proposition: Documenting the technical performance of the AI methods, relative to statistical baselines, along with initial user testing will demonstrate the scope for value over and above existing approaches, and confirm the innovative nature of the technical methods selected. Given there exist multiple potential competitors (e.g., software developers other DNOs), articulating how the solution differs, the additional potential performance, and the proposed integration into decision-making, will be vital to showcasing business value at Alpha. Together with technical performance, Alpha will explore the commercial USP of this solution, i.e., the integration with flexibility procurement.

4. Implement at Beta: directly into NPg infrastructure for use within BAU operations. Beta would also seek to integrate additional network partners, to test applicability and potentially include their data. Performance of the technical solution will be iterated and refined, with re-training, validation, security, monitoring and oversight procedures established, together with aspects such as product support and maintenance. The conclusion of Beta will reflect an implementable product that could be commercialized across the DNO sector.

Throughout and following Beta, the product will be marketed and upsold to DNOs both in the UK and internationally. The ultimate ambition is to support the global DSO transition and enable a digital marketplace for flexibility, encouraging market entry and stability of the power system.

Commercial readiness

Faculty would be responsible for the development of the technical IP, and the majority of the solution integration needs. Faculty has wide experience developing bespoke AI software across 400+ projects, many of which apply to critical infrastructure settings, including the AI software underpinning the NHS' covid response. Resources include PhD data scientists and engineers, providing not only AI forecasting capability but also the experience and skills to implement the necessary product infrastructure. Faculty has also established, implemented and integrated its own software product, Frontier, which includes state-of-the-art forecasting models and features, in various healthcare settings. NPg also hold the core technical infrastructure to host and integrate such software; optimal integration will be explored further at Alpha.

Policy, standards and regulations (not scored)

We do not consider that there are any barriers to meeting the requirements of regulations, policy or standards applicable to this project.

For example, at Discovery the project considered the cyber and information security requirements applicable to this work. These relate to the following aspects, which will considered further at Alpha:

General cyber security requirements that any third-party working with NPg must comply with.
Assessment of the applicability of Security of Network & Information Systems Regulations (NIS Regulations) regulation.
Development of System Security Impact Assessment ("SSIA"), which is carried out when a project involves using APIs or building interfaces within NPg's infrastructure
We do not consider there to be any barriers to meeting these requirements.

Value for money

otal project costs: £522,445

SIF funding requested: £467,838

This is balanced as: Faculty 86%, NPg 7%, EV.Energy 4%, Oaktree Power 3%, reflecting the effort required to deliver the assigned work-package content. All cost is associated with labour.

Each partner is prepared to contribute the required 10% as this project is aligned with their strategic interests. This contribution will be funded from ongoing business activities.

There are no subcontractor costs.

There is no additional funding from other innovation funds.

No specific pre-existing assets or facilities, although the project could not take place without the data at our disposal. Costs associated with data storage and compute resource for deployment of models on cloud infrastructure will be absorbed by Faculty.

Associated Innovation Projects

○ Yes (Please remember to upload all required documentation)
◉ No

Supporting documents

File Upload

DFQM - Technical Review v3.pdf - 1.2 MB
Artificial Forecasting Alpha (SIF) - WP2-D2 Results Scope Item 2.pdf - 4.5 MB
Artificial Forecasting Alpha (SIF) - WP2-D2 - Results Scope Item 1.2.pdf - 10.5 MB
Artificial Forecasting Alpha (SIF) - WP1-M1 - User research report, updated technical approach and architecture diagram.pdf - 3.1 MB
SIF Alpha Round 2 Project Registration 2024-01-18 8_49 - 75.3 KB

Documents uploaded where applicable?

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