Scottish & Southern Electricity Networks

SIF Alpha Round 4 Project Registration

Date of Submission

Dec 2025

Project Reference Number

10166254

Initial Project Details

Project Title

FastTrack Alpha R4

Project Contact

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Challenge Area

Faster network development

Strategy Theme

Whole energy systems

Lead Sector

Electricity Distribution

Project Start Date

01/10/2025

Project Duration (Months)

6

Lead Funding Licensee

SSEN - Southern Electric Power Distribution Plc

Funding Licensee(s)

SSEN - Southern Electric Power Distribution Plc

Funding Mechanism

SIF Alpha - Round 4

Collaborating Networks

Scottish and Southern Electricity Networks Distribution

Technology Areas

Asset Management

Comms and IT

Modelling

Energy Storage

Resilience

Project Summary

The distribution connections queue is c.180GW and growing, driven by electrification of demand and growth in low-carbon generation and storage. Assessing overall network impacts from this ever-evolving connections stack is challenging, complicating networks' assessment of available headroom and future investment needs.

FastTrack, an Artificial Intelligence solution, simulates the impact of connection requests from primary substations to the Grid Supply Point. By analysing network capacity, existing load, connection data, and external drivers, it provides a consolidated view of future demand. This supports system planners in making informed decisions on investments, access products, and interventions to accelerate delivery and optimise capacity use.

Add Preceding Project(s)

10142974 - FastTrack Discovery R4

Add Third Party Collaborator(s)

Faculty Science Ltd

Project Budget

£554,998.00

SIF Funding

£499,498.00

Project Approaches and Desired Outcomes

Animal testing (not scored)

- ○ Yes
- ⦿ No

Problem statement

With the distribution queue approaching 180GW, Distribution Network Operators (DNOs) urgently need solutions to expedite connection delivery and make better use of existing network capacity. These solutions are essential to support a flexible grid and meet national decarbonisation targets, including Clean Power 2030.

The key challenge for DNOs is to safely integrate new connections while optimising interventions such as reinforcement and flexibility. However, DNOs currently lack the tools to dynamically assess the impact of the evolving queue on network assets, to inform headroom assessments. As projects frequently enter and exit the queue, e.g. due to transmission dependencies, planning becomes more complex and requires continuous adaptation.

Current methods, which involve material human resources to design, plan and adapt interventions, are not sufficiently scalable to address this challenge, given rapid growth in connection requests and the continued electrification of demand.

Discovery Evolution

The Discovery phase clarified the problem by identifying current practices, challenges, and user needs in investment planning. DNO system planners typically use physical or economic models, such as Distribution Future Energy Scenarios (DFES), to forecast annual load growth and assess connection requests individually.

However, these methods are not able to capture the cumulative impact of individual or group requests on network assets, predict changes like dropouts, or provide real-time updates as the queue evolves. SSEN planners noted that accounting for pending connections is a major gap, often leading to conservative plans and reactive adjustments. Moreover, planners noted considerable challenges replanning (and re-costing) interventions as larger assets join or fall out of the queue.

Discovery also identified the impact of external initiatives. For example, current NESO Connection Reform, including the new Gate 2 process, focuses on generation only; DNOs also need to look at demand sites, which is the focus of the proposed FastTrack Alpha solution.

Solution

FastTrack fills a critical gap by using AI to simulate the load impact of connection requests across network assets, up to two years ahead, from primary substations to the Grid Supply Point (GSP). It aggregates the cumulative effect of individual connections, helping planners understand how local decisions influence the wider network. By analysing connection request characteristics and external factors (e.g.land ownership), it builds a probabilistic view of future load and likely dropouts, using data on capacity, topology, and load. This results in:

*More efficient connections delivery, reflected through decreased time to quote (given improved visibility of the queue) and connect (via better-planned interventions).

*Better prioritisation of interventions e.g. reinforcement, allowing resource allocation to higher-criticality assets.

*Maximises the use of existing network capacity to support wider electrification.

The timing of this innovation is opportune, as ongoing Connection Reform is primarily focused on generation. FastTrack complements this by initially concentrating on demand.

User Needs:

DNO system planners, who manage the fast-moving connection queue and plan network interventions, are FastTrack's primary users. Discovery research showed that planners currently assess connections individually and lack tools to evaluate their combined impact across network assets.

A key need is identifying speculative applications that consume planning effort but may never connect.

FastTrack will help planners:

- Assess whether individual or grouped requests can be accepted based on a probabilistic assessment of network impacts.
- Estimate the reinforcement or flexibility needed when capacity is limited.
- Improve coordination with Transmission Network Operators (TNOs) through GSP-level impact analysis.

Innovation Challenge:

FastTrack addresses Round 4 Challenge 1 by accelerating network development through AI software that maximises existing capacity and improves network intervention design. It meets Aim 3 by using AI for real-time optimisation and supports Theme 1 by enabling novel, data-driven methods to boost capacity from existing assets and enable faster, more efficient connections.

Innovation justification

Challenge:

FastTrack, aligned with Round 4, Challenge 1, is an AI-driven solution that simulates the impact of the distribution connection queue. It enhances system planning and headroom assessments, helping DNOs optimise existing network capacity and accelerate connection times.

Core Innovation:

New Capability: FastTrack offers a new capability to model the evolving connection queue's impact on the network. By capturing diverse connection behaviours, it gives system planners a dynamic, regularly updated view, moving beyond static forecasting methods.

Novel Application of AI Techniques: Using a novel combination of probabilistic forecasting and simulation, FastTrack quantifies uncertainty in connection uptake and behaviours. This moves beyond traditional methods like DFES or individual assessments, offering system-wide insight into likely network impacts.

Surpassing the State-of-the-Art:

Forecasting at System Level: FastTrack models the impact of individual/grouped connection requests from substations to GSP. This offers visibility of how local decisions shape wider system outcomes; capability not currently available in existing tools.

Dynamic Risk Assessment: FastTrack provides a probability-weighted view of the evolving queue up to the GSP, helping DNO system planners to make more robust decisions on accepting connection requests and designing optimal interventions (e.g., reinforcement, flexibility, and access products).

Faster, More Flexible Planning: FastTrack's capabilities will enable DNOs to more quickly design and crucially adapt interventions (e.g., prioritisation of investment and design of access products). Unlike current methods that can take days or weeks to develop headroom assessments and often need to be recalculated as the queue changes, FastTrack provides an up-to-date assessment of operating headroom, allowing DNOs to quickly adapt plans as the queue changes.

Working in the Open: During the Discovery phase, the project engaged openly with stakeholders across the DNO business. Their input and feedback directly shaped the direction of the Alpha project.

Building on Previous Research:

The Innovation Appendix maps the proceeding innovations focused on accelerating the connections queue and how FastTrack fits in.

Past projects have improved parts of the connection process, e.g. UKPN's HV Auto Quote for quote generation; ENA ConnectDirect and NGED Click2Connect for application efficiencies; NPg Artificial Forecasting for load forecasting. However, none assess cumulative, risk-weighted impacts across the GSP. FastTrack builds on these efforts to deliver a fundamentally new planning tool.

TRL, IRL, CRL:

TRL: Discovery reached TRL2, validating the solution concept with system planners. At Alpha, a streamlined PoC build focusing on four solution elements will raise this to TRL4.

IRL: Discovery formulated the business concept (IRL2), with Alpha seeking to validate the value proposition and develop a firm route to market (IRL4).

CRL: Discovery has considered the commercial proposition (CRL2), to be developed to CRL4/5 (early market engagement) throughout Alpha, working with DNO partners to facilitate longer-term adoption across the sector.

Size/Scale: The scale of the project, being inherently large/risky, is proportional to the requirements to rigorously develop and test AI solutions and determine a clear route to adoption.

Funding/BAU: SIF funding is crucial as the ambitious scope, low TRL and inherent risks of this solution cannot be advanced under BAU. The benefits from introducing AI methods will be magnified by the foundational work undertaken within this SIF project, which develops capability at speed and rigour over and above current plans, potentially unlocking further related innovations, complementing DNO's Digitalisation Strategies and Action Plans.

Counterfactuals: Expanding current resources or repurposing existing tools will not be sufficient to meet the growing demand in connection requests and interventions (e.g., bottom-up substation-by-substation analyses). These tools lack the ability to assess cumulative, forward-looking impacts and are limited to substation-level analysis. In contrast, FastTrack's AI-driven approach is scalable across SSEN and other DNOs incorporating diverse data inputs more readily than current methods.

FastTrack Alpha- Innovation Justification_Final.pdf (opens in a new window)

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Impact and benefits (not scored)

Financial - future reductions in the cost of operating the network

Revenues - improved access to revenues for users of network services

Impacts and benefits description

Pre-Innovation Baseline and metrics: DNOs currently lack the capability to assess, in real-time, the impact of the evolving connections queue on the electricity network, from primary substations up to the Grid Supply Point. Planning decisions rely heavily on manual, static methods that cannot keep pace with the scale and volatility of new connection requests, driven by electrification. Key metrics defining the baseline include:

*Planned connections-related reinforcement expenditure at HV and above (from SSEN's ED2 business plans, projected forward to 2038).

*Time to Quote (TTQ) and Time to Connect (TTC), segmented by voltage level and asset type.

*Growth in system planning FTE that would otherwise be required, under existing approaches, to keep pace with the scale of interventions and connections requests

Annual improvements (c.2% pa) in TTQ/TTC are expected under BAU due to wider connections reform and other initiatives ongoing at SSEN.

Forecast Net Benefits to Consumers:

If implemented into business-as-usual at SSEN (Option 1), FastTrack would deliver an NPV of c.£35 million by 2038, assuming operational deployment from2028. It achieves this through three core benefit channels:

Financial: Reduced Cost of Network Operation

Channel 1. More efficient planning and delivery of interventions. FastTrack provides system planners with an ongoing view of the load impact of the connections queue, facilitating better prioritisation of network interventions. This allows interventions to be scoped faster and more flexibly as the queue evolves.

This is quantified through a 2% efficiency saving on 'relevant' connections related reinforcement, defined as:

*In-scope: 55% of reinforcement applies to HV and above, the portion of the network targeted by FastTrack.

*Relevant portion: 70% of 'in-scope' investment is likely targetable by FastTrack; this is the portion without transmission dependencies (39% of projects are currently transmission-dependent (ENA), however following updates to CMP446, raising the threshold that transmission impact assessments must be conducted, we assume 30%). Channel 2. Operational Efficiency: avoided Headcount Growth

Under BAU, SSEN would require c.10 additional FTEs by 2035 to support manual queue analysis and planning. FastTrack automates core forecasting tasks, enabling FTE cost avoidance while improving performance. This benefit is estimated in the range of £6--8 million in avoided costs over the forecast period (pre-discounting).

Revenues: improved access to revenues for users of network services

Channel 3. Expedited revenues to developers. Enabling SSEN system planners to better and more flexibly design and execute interventions streamlines Time to Quote (given this is where the majority of system planning effort lies) and Time to Connect (given higher quality and more streamlined interventions). Given FastTrack will first focus on demand, the CBA considers the impact of these efficiencies on revenues for demand-sites (data centres and commercial sites) and distribution-connected storage only.

Expedited revenues are calculated using typical assets and revenue profiles. E.g. for batteries, a 10MW battery size is assumed, with monthly revenues collected from market analysts Modo energy. For each asset:

*Days saved in TTQ/TTC are estimated based on the potential impact of FastTrack -- these typically reflect a c.5% time reduction relative to the baseline. Time to Connect impact assumptions are half those of Time to Quote.

*Days saved are multiplied by typical revenue per day, to aggregate expedited revenue access by asset type, multiplied by the expected number of connections from DFES.

Benefits Realised to Date

FastTrack has already delivered early-stage value by:

*Demonstrating potential for an AI solution to enhance system planning

*Showcasing the value in aggregating disparate public/private data sources into a single solution.

*Engaging system planners to validate early prototypes and shape user-centric design. These steps have reduced technical risk and created strong foundations for build of the proof-of-concept at Alpha.

Teams and resources

FastTrack builds on the strong partnership formed during Discovery between SSEN (network sponsor) and Faculty (leading AI development).

SSEN

Role: Lead Partner, end-users of the solution, project management oversight, dissemination, lead, and SME input from Connections, Engineering & Investment, Commercial and Operational Technology teams.

Skills & Experience: SSEN operates the electricity distribution network across Central Southern England and the north of Scotland, serving over 3.9 million homes and businesses. With a strong track record in delivering SIF, NIC, and NIA projects, SSEN brings expertise in load forecasting, network planning, and low-carbon integration. Their deep understanding of network data, customer connections, and operational realities is key to project success.

Faculty

Role: Lead the development and technical approach of AI solutions to assess the impact of connections requests. This incorporates user-research, data science, and engineering expertise for solution build and deployment. For Alpha, the focus will be on building Proof of Concept (PoC) AI models for SE1 (Probabilistic Load Forecast with Attrition), conducting a technical assessment of SE2 (Short-term Flexibility Forecast for Access Products), and creating a development plan for all other solution elements (SE2, SE1+: Roll-up from HV to BSP/GSP and SE3: Incorporating Storage into Load Forecasts). The team will include:

*Delivery Manager: Day-to-day project technical operations, and translating technical information into deliverables.

*Data Scientist: Day-to-day design and build of technical solutions, including data requirements, methodology assessment and reporting.

*Senior Data Scientist: Oversight and design of technical data science solutions.

*(Senior) Machine Learning Engineer: Design of technical solution architecture, setup of system access, implementation route to BAU.

*Senior Manager: Responsibility for ensuring technical solutions is designed to meet SSEN objective and user needs; overall responsibility for delivery.

*Customer Director (not charged): Oversight and relationship management, ensuring technical solutions are scalable to other DNOs.

*Product/Service Designer: Curating the user experience for the AI solution, from initial design to implementation.

Skills & Experience: Faculty is UK's leading AI firm specialising in design, build and deployment of bespoke AI systems for critical national infrastructure. Faculty has delivered 400+ projects across energy, utilities, government and enterprise sectors. This includes prior SIF experience and 5 NIA-funded engagements involving both networks and the system operator, collaborating with partners across the energy value chain (e.g. hardware providers, flexibility service providers). The Faculty team incorporates a blend of technical and commercial expertise.

Resources

No specialist equipment/facilities are required for Alpha; There are three key dependencies required for Alpha that SSEN can provide:

*Access to data: timely access to datasets (identified in Discovery) to perform data analysis will be provided by secure upload to Faculty's data science platform for analysis.

*Access to hardware and the Azure platform: access to SSEN's Azure platform and internal IT systems/tools, with requirements defined in advance.

*Key Stakeholder Engagement: Following Discovery, ongoing collaboration with key users is essential to ensure the solution meets user needs and drives adoption.

Other Parties

No other external parties, network users or consumers are vital for successful delivery. We will seek to engage with NESO as leader of connections reform/RESP, together with the ENA Connections Working Group, to understand alignment with planned policy and regulations, and further seek to establish a wider DNO steering group.

Project Plans and Milestones

Project management and delivery

PM approach

SSEN will lead project management using proven and well-established processes from previous SIF, NIC, and NIA projects. Partners will follow practices (e.g. Agile methodology) outlined in the PM Book and collaborate via tools like Notion, Teams, and Faculty's Frontier platform.

Daily stand-ups, weekly meetings, monthly Steering Committees, and any other ad-hoc meetings will ensure clear communication and quick issue resolution. Progress will be tracked using UKRI tools (e.g. Risk Register, Project Plan) and internal resources (e.g. Gantt Chart, Finance Tracker) to ensure timely, high-quality delivery.

Work Packages

WP1 Reporting & Governance: Establishing project governance, ensuring access to data and expertise, managing risks, planning, updating benefits, and reporting on Alpha findings, project performance and Beta plans.

Key outputs: Project Plan, Risk Register, Slide Decks, CBA

WP2 Users & UX Design: Confirming user/functional requirements, validating solution design and developing/iterating front-end wireframes through user testing for Beta deployment.

Key Outputs - User Needs Summary and User-Tested Wireframes.

WP3 Data Science - SE1 PoC Build: obtaining and confirming the quality of input datasets, agreeing on model validation approaches, and developing proof-of-concept machine learning models for the core solution.

Key Outputs - Refined PoC approach and User-Tested Model Outputs

WP4 Data Science - Additional Solution Element Scoping: scoping remaining solution elements, conducting user research and data analysis to refine design and implementation of solutions, and developing a clear plan for Beta, including a technical assessment of SE2.

Key Outputs - Development plan for all other solution elements

WP5 Engineering & Infrastructure: identifying and securing all necessary requirements (InfoSec, security, access, governance) for solution deployment and producing a clear roadmap for the BAU integration and ongoing use of the tool by SSEN.

Key Outputs - Clear Deployment Requirements, Plan for BAU and Commercialisation, Beta Proposed Architecture and Implementation Plan.

Dependencies between WPs ensure a logical flow, aligning with objectives and stakeholder expectations and can be viewed in the PM Book.

Risk management

Our risk management strategy is proactive and continuous; key elements include:

*Early Identification: risks are identified at the outset and continuously monitored through weekly coordination meetings and monthly Steering Committees.

*Mitigation Planning: for each identified risk, a clear mitigation strategy and owner are assigned; risks are mitigated via risk-specific approaches detailed in the Risk Register.

*User Focused: focus on end-user research and UX design early on to validate solution design and mitigate potential future adoption issues.

*Regulation: remaining up to date with Connections Reform to ensure that FastTrack remains in-step with changes.

Outcomes for WP1 feed directly into WP2-WP5 activities. To reduce risks from this dependency, we will prioritise (i) identifying stakeholders for user research and (ii)
submitting data/access requests at project start. This ensures other WPs can progress in parallel without delay. WPs are staggered with built-in flexibility to address any blockers from a previous WP, together with practical mitigations to limit timeline risk. Key risks include data availability and ensuring strong user adoption. Where risks cannot be fully mitigated, these can be escalated to SSEN management or the UKRI monitoring officer.

Supply interruptions & regulatory risks

There will be no planned or unplanned supply interruptions for consumers and the project does not anticipate any specific policy and regulatory risks or challenges to deployment, derogations and requests for changes in regulation for the Alpha Phase.

Wider engagement

There will not be any direct interaction or engagement with energy consumers through Alpha, however, if successful, the project would have multiple benefits for energy consumers, as outlined in Question 6.

[FastTrack Alpha PMT and CBA.xlsx (opens in a new window)](/application/10166254/form/question/47963/forminput/135615/file/833311/download)

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Key outputs and dissemination

Alpha Objectives

By the end of Alpha, our goal is to build and validate a robust Proof-of-Concept (PoC) AI solution for the core feature: Probabilistic Load Forecast with Attrition (SE1). This will demonstrate both clear business value and technical feasibility, proving that the most technically complex feature can be successfully built using available data. Success at this stage will lay the foundation for Beta to successfully build other solution elements and eventual Business-As-Usual (BAU) integration.

At a high-level, the objectives enabling a successful Alpha are:

*Demonstrate business value: develop a solution that clearly demonstrates business value, validated by SSEN and other DNOs, and builds upon the initial Cost Benefit Analysis.

*Demonstrate performance: acting as a proof-of-value, determine how the solution can best be integrated into decision-making at Beta, and demonstrate performance over and above a defined baseline.

*Preparation ahead of Beta: ensure that the solution built and our understanding of existing infrastructure are sufficiently advanced and ready to be further developed and scaled.

Outputs will be supported by a set of project deliverables that together comprehensively document evidence underpinning each step.

Key Outputs and Owners

WP1

*D1: Revised Alpha plan / PM Book (SSEN), including updated Gantt Chart and Risk Register.

*D2: Documented benefits for adoption of Fast Track solution and CBA demonstrating quantitative benefits.

*D3: End of Phase Report (SSEN) documenting progress at Alpha and plan for Beta.

*D4-D7 covering Beta planning and UKRI outputs.

WP2

*D1: User research and user needs summary (Faculty) outlining solution needs.

*D2: Front-end wireframes for Probabilistic Load Forecast with Attrition (Faculty) tested with end users (SSEN).

*D3: Wireframe and solution replicability tested with other DNOs (SSEN).

WP3

*D1: Refined PoC approach (Faculty), including modelling approach and data inputs.

*D2: User tested Probabilistic Load Forecast PoC model outputs and findings documented, providing a core evidence base for progression at Beta (Faculty).

WP4

*D1: Short Term Flexibility Forecast for Access Products solution element initial development plan (Faculty), including proposed data flows and solution development route.

*D2: Roll Up to BSP/GSP and Incorporation of Storage into Load Forecast elements initial development plan (Faculty) for inclusion in the Beta Plan, including initial technical approach, inputs and user needs for further validation at Beta.

WP5

*D1: Documented deployment and security requirements (Faculty) relating to SSEN infrastructure, including key risks and mitigations.

*D2: Implementation plan and proposed solution architecture for Beta (Faculty), including back-, front-end and modelling integration.

*D3: Pathway from Alpha to BAU, with a clear plan for commercialisation.

Dissemination Strategy

Project reports, findings and learnings will be made freely available to DNOs, and any other interested parties. FastTrack will also participate in UKRI-led activities, such as Show and Tell and publication of the project overview on the ENA's Smarter Networks Portal, led by SSEN-D.

As part of Alpha WP2, we intend to proactively gather feedback from other DNOs on the wireframe and overall solution (e.g. through Steering Groups) with a view to formal partnership at Beta.

We will also raise awareness through partner's communication channels, including websites and social media platforms, also via participation in events like the Energy Innovation Summit.

Preventing Market Monopolies

This project will support competitive markets by:

*Knowledge sharing: Free dissemination of findings and outputs to encourage industry-wide adoption and innovation.

*Collaboration: Engaging with other DNOs and industry groups to ensure that benefits are shared across the sector without favouring a single entity. *Non-exclusive solution: Alpha reporting will be publicly available, providing details of the solution objectives and functionality. DNOs will have royalty-free access to foreground IP developed through this work.

Commercials

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

To ensure clarity is provided to the Project partners, UKRI and Ofgem regarding intellectual property (IP), the Project is using an IP register to track the Background IP provided to the Project, the Foreground IP the Project generates, and the use and access rights to all this IP.

The main contract governing the Project (the Collaboration Agreement) will include detailed, mutually agreed terms governing IP that are in line with the SIF Governance Document. For the Discovery Phase, all the IPR arrangements will follow the default recommendations in Chapter 9 of the SIF Governance Document.

Commercialisation, route to market and business as usual

1. BAU Integration: Successful AI adoption requires robust planning across 5 fundamental delivery pillars:

-Users/Governance: Discovery included \>20 user research sessions across SSEN, identifying system planners as primary users within connections intervention decision-making. Alpha will conduct further user research to confirm technical and business owners, refine process maps, iterate solution designs, and identify skills gaps. Beta will then focus on technical deployment, decision-integration, user acceptance testing, and change management.

Senior SSEN leaders were engaged at Discovery, with the Head of Network Operations, and Head of Engineering and Investment attending monthly project steering committees. Their continued support, along with that of other DNOs, represent core solution enablers.

-Data: Discovery collected publicly available SSEN data to inform initial solution designs, including substation load, embedded capacity and DFES. Alpha will ingest additional internal datasets (e.g. NeRDA, PROMIS) to enable development of the proof-of-concept (PoC), and identify required linkages to 'live' datasets. Beta will then focus on engineering cloud-based, modular solution elements to enable frequent data updates and maximise compatibility to wider DNOs.

-Technology: Alpha will develop an AI proof-of-concept that estimates load at primary substations up to the GSP, accounting for connection request behaviour. Parameters e.g. required retraining frequency and performance metrics will alsobe identified. Beta will then focus on performance improvement, connecting models to live data, ensuring scalability across SSEN and other DNOs, resulting ina deployed solution that is periodically and automatically retrained, accompanied by documentation e.g. user guides and a model governance framework.

-Infrastructure: SSEN (and other DNOs) use Azure Cloud infrastructure on which the proof-of-concept will be built, but in principle transferable to other cloud platforms. Requirements e.g. Infosec, privacy and ongoing ownership will be identified at Alpha, to build on those already identified at Discovery, with back- and front-end deployment conducted at Beta. The deployed solution will come with an agreed maintenance plan, with a dedicated handover period.

-Benefits: Alpha will design and user test front-end designs with system planners, to build engagement and visualise the day-to-day benefits. Beta will then focus on the build and user acceptance testing of the UX functionality identified, for ongoing use post-Beta.

Together these elements will come together as a fully deployed software product by the conclusion of Beta, used daily by system planners to understand reinforcement /flexibility trade-offs resulting from the frequently evolving connections queue.

2. Scaling:

To support future interoperability, successful Beta deployment not only entails successful deployment at SSEN, but maximising interoperability to other DNOs.

We are already in discussions with NPg, who have demonstrated interest in joining at Beta.

At Beta, we will also establish a cross-DNO working group to guide deployment and build momentum for wider adoption, We'll also work closely with NESO to align with broader connections reform and RESP.

For example, to maximise compatibility, the Beta solution could be developed on an independent Azure account with ready-to-use data pipelines. The codebase will be developed with cross-platform compatibility in mind, such that the solution can be tailored to the data and technical systems across other DNOs.

3. Commercialisation:

The project team is open to considering commercial options as the project progresses. At this stage, a proposed approach is for Faculty to develop and own the foreground IP, which (per SIF) will be transferred to SSEN for BAU use. Solution maintenance could sit either with SSEN in-house teams, Faculty or a third-party integrator; the latter provides an opportunity for broader market engagement.

Post-Beta, other DNOs will have royalty-free access to foreground IP. Faculty, as IP owner, will be incentivised to promote wider adoption with implementation fees applying for customisation.

Policy, standards and regulations (not scored)

The project team does not foresee any barriers to complying with relevant policies, regulations, or standards. FastTrack will remain vigilant and responsive to developments in the energy and AI sectors, including Ofgem's AI Guidance, Connections Reform, and Regional Energy System Planning (RESP), which we will review proactively on a monthly basis.

While the use of advanced technologies such as AI presents certain challenges---particularly in relation to evolving ethical standards---the team is committed to adhering to best practices and both national and international frameworks, as outlined in Ofgem's guidance and other emerging standards.

As the project progresses from Alpha to Beta, we will explore opportunities to inform and enhance planning and connection assessment frameworks. For instance, FastTrack's SE3 Battery Storage Load Forecast solution at Beta could contribute to initiatives such as the Energy Networks Association's Battery Storage Connections Tactical Solutions Guidance Notes.

With ongoing developments in connections reform and the evolving role of NESO, we anticipate updates and formalisation of industry guidelines. FastTrack will actively consider how the project can support and shape these emerging frameworks.

Value for money

Total Costs

Total Alpha project costs: £554,998

SIF Alpha funding requested: £499,498

Alpha Contributions: £55,500 (10%).

SSEN-D

*Full Costs £73,298
*Funding £65,968
*Contribution £7,330 (10%)

Faculty

*Full Costs £481,700
*Funding £433,530
*Contribution £48,170 (10%) plus costs outlined below.

These percentages underscore the substantial technical demands of FastTrack Alpha and the indispensable contribution of Faculty's cutting-edge expertise in artificial intelligence, data science, and machine learning; capabilities that are vital to driving the project's success.

Faculty brings a rare combination of deep technical knowledge and broad sector experience, particularly through their dedicated Energy Transition team. Their proven track record across all phases of SIF projects, from Discovery to Beta, further reinforces their unique value.

Demonstrating their commitment, Faculty has chosen not to claim expenses for compute, travel, or Senior Director oversight. These costs will be absorbed within their delivery, in addition to their 10% financial contribution to the project. Fixed day rates submitted have also been discounted relative to standard commercial rates that would otherwise apply outside of the innovation fund, with conservative year-on-year inflation applied to like-for-like roles from Alpha.

SSEN is also contributing 10%, reflecting the strong alignment between the project and their strategic priorities. Both Faculty and SSEN's contributions are being funded through ongoing business activities, underscoring their shared belief in the project's long-term impact. The balance of funding reflects that the majority of Alpha focuses on the build and testing of the technical solution.

Funding is expected to be allocated to deliverables and work packages in the following way:

WP1 -- Reporting and Governance Funding £16,492 (4%)

WP2 -- Users and UX Design Funding £116,391 (23%)

WP3 -- Data Science: Probabilistic Load Forecast PoC build Funding £204,984 (41%)

WP4 -- Data Science: Additional Solution Element Scoping Funding £111,680 (22%)

WP5 -- Engineering, Infrastructure and Commercialisation £49,951 (10%)

Our value for money proposition also reflects the benefits expressed in the CBA. In the selected scenario (Option 1 - SSEN rollout), the payback period for the project is 3 years (2028), with an overall NPV estimate of c.£22m over a 10-year period, and £35m up to 2038 ; this represents considerable ROI relative to aggregate SIF funding outlay across Discovery, Alpha and Beta. If the project is successful in rolling out to three wider DNOs (Option 2), benefits will be significantly higher, at £57m after 10 years and £105m to 2038. This provides
confidence in benefits even accounting for forecast uncertainty and regulatory and policy developments over the course of the next price controls.

There are also potential benefits that will be derived from this work that either cannot or are challenging to quantify within the CBA to date. For example, unblocking the connections queue will likely represent a significant catalyst forwider regional economic growth beyond the 'first round' effects expressed in our CBA. This solution also supports the wider electrification of demand, a core component of the UK's decarbonization strategy and its associated environmental and societal benefits - the contribution to which is challenging to isolate in practice, given the project represents one of many policy, regulatory and technical solutions seeking to drive change. To date, the CBA has focused on demand sites and storage; further benefits (both financial and environmental) can be unlocked by expanding to distributed generation.

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 SSEN's disposal.

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 2025-12-12 1_48 - 89.4 KB
R4_Alpha_FastTrack_PD_10166254.pdf - 262.1 KB
R4_Alpha_FastTrack_Application_10166254.pdf - 350.7 KB

Documents uploaded where applicable?

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