SP Energy Networks

Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 6 pages in total.

NIA Project Registration and PEA Document

Date of Submission

Feb 2026

Project Reference Number

NIA_SPEN_0131

Project Registration

Project Title

FutureUp

Project Reference Number

NIA_SPEN_0131

Project Licensee(s)

SP Energy Networks Distribution

Project Start

February 2026

Project Duration

2 years and 1 month

Nominated Project Contact(s)

Parham Momeni, Sarah Cooper

Project Budget

£1,460,000.00

Summary

Future Up is an innovation programme that enables SP Energy Networks to plan efficiently for the electrification of transport and heat. As electric vehicles, heat pumps, and commercial electrification accelerate, existing planning approaches lack the spatial resolution and flexibility required to support timely and cost-effective network investment.

The project delivers a unified, data-driven forecasting platform that provides property-level insight into future electricity demand across domestic, public charging, fleet, and commercial heat sectors. By integrating enhanced forecasting methodologies with real-world stakeholder plans, Future Up improves forecast accuracy, reduces the risk of over- or under-investment, and supports faster customer connections.

The programme facilitates the energy system transition, delivers consumer benefits through avoided network costs, and generates transferable learning applicable across GB electricity distribution networks.

Preceding Projects

NIA_SPEN_0037 - Electric Vehicle Uptake Modelling (EV-Up)

Third Party Collaborators

Dotted Eyes Solutions

Nominated Contact Email Address(es)

innovate@spenergynetworks.co.uk

Problem Being Solved

The transition to Net Zero requires rapid deployment of EV charging and heat electrification infrastructure. Network planning is constrained by fragmented datasets, highly localised and uncertain demand patterns, and limited alignment between long-term scenarios and near-term investment decisions. Existing tools rely on broad assumptions that cannot reflect real-world delivery plans from local authorities, developers, and commercial operators.

Without integrated, high-resolution forecasting, SP Energy Networks risks inefficient capital investment, delayed customer connections, increased whole-life system costs, and reduced confidence in regulatory submissions.

The challenge is compounded by the increasing pace and geographic concentration of low-carbon technology adoption. Electric vehicle uptake, heat pump installations, and commercial electrification are not evenly distributed; instead, they cluster around specific neighbourhoods, depots, corridors, and development zones. These localised demand spikes place acute pressure on low-voltage and primary substations, which are not visible through traditional top-down forecasting approaches.

Current planning methodologies rely heavily on long-range scenarios and averaged assumptions, which are appropriate for strategic outlooks but insufficient for near-term, site-specific decision making. As a result, planners lack timely visibility of where reinforcement will be required, leading either to precautionary over-investment or reactive, last-minute upgrades once customers request connections.

In parallel, there is increasing misalignment between SP Energy Networks and external stakeholders such as local authorities, charge point operators, fleet operators, and developers. These parties hold valuable intelligence on future delivery plans, but there is no governed mechanism to integrate this information into network forecasts in a structured, auditable manner.

Without intervention, these challenges will intensify as electrification accelerates through RIIO-ED2 and into ED3, increasing the risk of delayed connections, inefficient capital deployment, and poorer outcomes for consumers.

Key objectives of addressing the problem are to:

- Improve the accuracy and spatial resolution of electrification demand forecasts
- Reduce the risk of inefficient or premature network reinforcement
- Enable faster and more predictable customer connections
- Support equitable infrastructure deployment
- Generate learning transferable across GB electricity networks

Method(s)

Future Up applies a novel, integrated forecasting methodology that replaces assumption-led approaches with high-resolution, property-level demand modelling. The project combines new methodologies for EV uptake, fleet electrification, and domestic and commercial heat demand with a governed data integration framework.

A dynamic feedback mechanism ingests real-world infrastructure plans from stakeholders, enabling forecasts to update as delivery intentions change. Data quality is managed through validation, governance, and standardised geospatial keys, ensuring outputs are suitable for operational and strategic planning.

Our ability to plan, coordinate and operate the network effectively depends on having high-resolution, property-level insights into demand. Existing tools such as EV Up and Heat Up no longer provide the level of granularity that is required to meet our obligations as a DSO to enable forward-looking insights into the electrification of transport and heat – this is what Future Up directly addresses.

From a DSO perspective, Future Up delivers improved planning accuracy and granularity, giving us property-level and PSS-level visibility of emerging load across domestic and commercial landscapes. Simple assumptions used in previous methodology for Commercial Heat forecasting will be replaced by detailed datasets, considering property type, size, and other key characteristics. These improved methodologies across both domestic and commercial transport and heat are critical for LV/HV reinforcement planning, DFES modelling and operational decision-making.

Future Up also delivers key tools, Chargepoint Navigator, Charger Optimiser and MetriX, which will significantly improve how we work with Local Authorities on EV rollout. The tools deployed will allow our Strategic Optimisation team to direct LAs towards a self-serve approach when developing EV rollout plans, introducing internal time saving while giving LAs the insight required to plan charging infrastructure effectively – resulting in benefits for the business and for our customers. Data flows between AIP and SPEN's core systems (DFES, D-Suite, LANIT, NAVI) will be managed through secure HTTPS APIs, structured data uploads, and automated exports in common formats (CSV, GeoJSON, GIS shapefiles).

It is expected that an End to End customer journey will need to be mapped from and to all Future Up and SPEN applications to ensure there is no duplication and mix of methodologies and assumptions. It is expected that in the case of ChargePoint Navigator, this will sit ahead of LANIT in the customer journey.

Measurement Quality Statement

The project will improve measurement quality by replacing aggregated, assumption-led demand estimates with property-level and site-specific forecasts derived from multiple independent data sources. Outputs will be benchmarked against historic uptake, observed network loading, and delivered infrastructure where available. Forecast accuracy will be assessed using back-casting and comparison against baseline methodologies currently used within SP Energy Networks.

Measurement performance will be reviewed at agreed project milestones by SP Energy Networks planners, with baseline methodologies re-validated as new observed uptake and delivery data becomes available.

Data Quality Statement

Data quality will be managed through a governed ingestion framework incorporating validation rules, provenance tracking, and version control. Core geospatial identifiers such as UPRN, LSOA, and network asset references will be treated as master data. Where third-party or incomplete datasets are used, confidence scores and assumptions will be explicitly documented to ensure transparency and auditability of outputs.

Scope

The project will design, develop, and deploy an integrated forecasting platform comprising:

- EV Up 2.0 – enhanced EV demand forecasting across charging segments
- ChargePoint Navigator – collaborative planning with local authorities
- Charger Optimiser – optimisation of public charging deployment
- MetriX – geospatial modelling of charging utilisation
- Fleet Up – depot and HGV electrification forecasting
- Domestic Heat Up – property-level residential heat modelling
- Commercial and Industrial Heat Up – non-domestic heat demand forecasting

Collectively, these components enable SP Energy Networks to move from static, scenario-based planning to a live, adaptive forecasting environment. This supports better sequencing of reinforcement, reduces avoidable network expenditure, shortens connection timelines, and improves coordination with external stakeholders. For consumers, this translates into lower long-term costs, faster access to low-carbon technologies, and a more equitable transition to Net Zero.

Objective(s)

The objectives of the project, which underpin the expected benefits, are to;

- Improve accuracy and spatial resolution of electrification demand forecasts
- Reduce the risk of inefficient or premature network reinforcement
- Enable faster and more predictable customer connections
- Support equitable infrastructure deployment
- Generate learning transferable across GB electricity networks

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

Future Up supports consumers in vulnerable situations by improving the spatial equity of infrastructure planning and reducing the risk that disadvantaged communities are left behind in the energy transition. By identifying areas with limited off-street parking, lower incomes, higher rental tenure, or constrained network capacity, the platform enables targeted interventions that support fair access to

EV charging and low-carbon heat.

Improved forecasting also reduces the likelihood of inefficient investment being recovered through customer bills. By avoiding over-reinforcement and stranded assets, the project helps to protect all consumers, including those least able to absorb cost increases.

Faster and more predictable connection processes further benefit vulnerable consumers by reducing delays in accessing affordable, low-carbon technologies. This is particularly relevant in urban areas with high rental tenure and limited off-street parking, and in rural or semi-rural communities where delayed or reactive reinforcement can disproportionately restrict access to low-carbon technologies. By improving spatial visibility of demand and constraints, the project supports more equitable outcomes across different consumer groups and geographies.

Success Criteria

The project will be deemed successful if it demonstrates:

- Material improvement in forecast accuracy versus baseline methods
- Evidence of avoided or deferred network investment
- Reduced planning and connection lead times
- Adoption of outputs by SP Energy Network planners and local authorities
- Documented learning disseminated to the wider sector

Project Partners and External Funding

SP Energy Networks will work with Dotted Eyes Limited (Field Dynamics) on this project.

Potential for New Learning

The project will generate transferable learning in three key areas:

- Property-level demand forecasting methodologies for electrification of transport and heat
- Practical mechanisms for integrating stakeholder delivery plans into network forecasting
- Governance models for managing data quality, uncertainty, and collaboration in digital planning tools

Learning will be disseminated via the ENA Smarter Networks Portal, industry working groups, and cross-DNO engagement, ensuring applicability across GB electricity distribution networks.

Scale of Project

The scale of the project is necessary to demonstrate whole-system integration across transport and heat sectors and to test integration with operational planning systems at sufficient depth. A smaller-scale project would not deliver transferable learning, nor adequately demonstrate the risks and benefits of deploying these methodologies at operational scale.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL5 Pilot Scale

Geographical Area

The project will be delivered across SP Energy Networks’ electricity distribution licence areas (SPM and SPD).

Revenue Allowed for the RIIO Settlement

0

Indicative Total NIA Project Expenditure

£1,460,000

Project Eligibility Assessment Part 1

There are slightly differing requirements for RIIO-1 and RIIO-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RIIO-2 / RIIO-1).

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations (Please complete sections 3.1.1 and 3.1.2 for RIIO-2 projects only)

Please answer **at least one** of the following:

How the Project has the potential to facilitate the energy system transition:

Future Up directly facilitates the energy system transition by enabling SP Energy Networks to plan and invest efficiently for the electrification of transport and heat. Property-level, spatially explicit forecasts support timely reinforcement of the electricity distribution network, reducing barriers to EV, heat pump, and commercial electrification uptake.

By integrating real-world delivery plans from local authorities and commercial stakeholders, the project accelerates the connection of low-carbon technologies and supports Net Zero targets while protecting consumers from unnecessary costs.

How the Project has potential to benefit consumer in vulnerable situations:

The project has clear potential to deliver net benefits to consumers by reducing the risk of over- or under-investment in network assets, avoiding stranded assets, and lowering whole-life system costs. Improved forecast accuracy enables better sequencing of reinforcement, reducing delays and inefficiencies that would otherwise increase costs borne by consumers.

Additional benefits include faster customer connections, reduced operational inefficiency, improved air quality and improved regulatory outcomes.

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

Project must have the potential to deliver a Solution that delivers a net benefit to consumers of the Gas Transporter and/or Electricity Transmission or Electricity Distribution licensee, as the context requires. This could include delivering a Solution at a lower cost than the most efficient Method currently in use on the GB Gas Transportation System, the Gas Transporter’s and/or Electricity Transmission or Electricity Distribution licensee’s network, or wider benefits, such as social or environmental.

Please provide an estimate of the saving if the Problem is solved (RIIO-1 projects only)

N/A

Please provide a calculation of the expected benefits the Solution

The Future Up project has clear potential to deliver net benefits to consumers of the electricity distribution system by improving the efficiency, timing, and targeting of network investment required to support the electrification of transport and heat.

Expected Benefits and Recipients

The primary mechanism for consumer benefit is the reduction of inefficient or premature network reinforcement through improved forecast accuracy and spatial resolution. By replacing aggregated, assumption-led demand forecasts with property-level, evidence-based modelling, the project enables SP Energy Networks to:

- Better sequence reinforcement in line with observed and anticipated demand growth
- Avoid precautionary over-investment where uptake does not materialise
- Reduce the likelihood of reactive, high-cost upgrades triggered late in the connections process

These benefits accrue directly to consumers through lower long-term network costs recovered via distribution charges. Additional indirect benefits include faster and more predictable access to low-carbon technologies such as EV charging and electric heating, reducing delays and uncertainty for customers.

Further benefits arise from reduced operational inefficiency within planning teams, shorter planning and connections lead times, and improved confidence in regulatory submissions. Collectively, these outcomes support improved value for money for consumers.

As a Development and Demonstration project, benefits will be assessed against an agreed baseline of existing planning methods currently used by SP Energy Networks.

The assessment will follow a Base Cost versus Method Cost approach, where:

- Base Cost reflects network investment and operational outcomes derived from existing forecasting approaches, including precautionary reinforcement, reactive upgrades, and manual re-work.
- Method Cost reflects outcomes informed by the Future Up platform, including improved demand visibility, more accurate sequencing of reinforcement, deferral of unnecessary investment, and reduced re-planning effort.
- A formal Cost Benefit Analysis (CBA) will be developed during the early stages of the project in line with Ofgem and Green Book guidance. This will quantify benefits where robust evidence is available and will be updated as the project progresses.

Given the innovative and integrative nature of the project, not all benefits can be fully monetised at registration stage.

However, based on prior experience with EV Up, Heat Up, and comparable digital planning initiatives, the direction of impact is expected to be strongly positive, with benefits materially exceeding project costs over time.

While precise monetisation will be undertaken through the project CBA, indicative benefit categories include:

Avoided or deferred reinforcement resulting from improved demand timing and spatial accuracy
Reduced reactive upgrade costs associated with late identification of capacity constraints
Operational efficiency savings from reduced manual analysis and re-work
Improved regulatory outcomes through stronger evidence-led submissions
Environmental and air quality benefits derived from a faster transition to low carbon technologies in EV and Heat.
These benefits are expected to accrue progressively from mid-project onwards and continue beyond the project lifecycle as methodologies are embedded into business-as-usual planning processes.

In addition to monetised impacts, the project delivers non-monetised benefits including improved investment optionality under uncertainty, increased confidence in stakeholder-led delivery plans, and stronger evidence for regulatory decision-making.

Please provide an estimate of how replicable the Method is across GB

The methodologies, data structures, and governance approaches developed through Future Up are highly replicable across Great Britain. The approach is applicable to:

- All electricity distribution licence areas
- Urban, suburban, and rural contexts
- Multiple electrification vectors, including domestic EV charging, public charging, fleet electrification, and domestic and non-domestic heat

The use of nationally consistent datasets (e.g. UPRN, EPCs, vehicle licensing data) and standard geospatial frameworks ensures that the solution can be transferred with limited adaptation. Learning generated through the project will therefore be directly applicable to other network licensees.

Please provide an outline of the costs of rolling out the Method across GB.

The costs of rolling out the Method across GB are expected to be materially lower than the initial development costs incurred under this project. This is because the core forecasting methodologies, data models, integration architecture, and governance frameworks will already have been developed, tested, and demonstrated.

Future roll-out costs would primarily relate to:

- Configuration for local network characteristics
- Integration with licensee-specific planning and asset management systems

- Ongoing licensing, hosting, and support

As a result, the marginal cost of adoption by additional network licensees is expected to be modest relative to the potential system-wide benefits, supporting a strong value-for-money case for consumers across Great Britain.

Requirement 3 / 1

Involve Research, Development or Demonstration

A RIIO-1 NIA Project must have the potential to have a Direct Impact on a Network Licensee's network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following (please tick which applies):

☐ A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).

☐ A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)

☐ A specific novel operational practice directly related to the operation of the Network Licensees system

☐ A specific novel commercial arrangement

RIIO-2 Projects

☑ A specific piece of new equipment (including monitoring, control and communications systems and software)

☑ A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven

☐ A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)

☐ A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology

☐ A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution

☐ A specific novel commercial arrangement

Specific Requirements 4 / 2a

Please explain how the learning that will be generated could be used by the relevant Network Licensees

Future Up is innovative because it replaces traditional assumption-led forecasting with integrated, hyper-local, data-driven methodologies that dynamically update based on real-world delivery plans, and which have not previously been deployed at operational planning scale within a live electricity distribution network.

The learning generated can be applied by other electricity distribution licensees to improve forecasting accuracy, stakeholder integration, and cost-effective network planning for electrification.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIIO-1 only)

n/a

Is the default IPR position being applied?

☑ Yes

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects already registered, being carried out or completed.

Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

he project does not duplicate existing or completed innovation projects. While related initiatives exist in the areas of EV or heat forecasting, Future Up uniquely integrates transport and heat electrification within a single, governed platform and applies novel methodologies at property-level resolution. Learning from other projects has been reviewed and incorporated where relevant.

Where relevant, learning from prior EV and heat forecasting initiatives will be reviewed and incorporated, avoiding duplication of activity while extending capability beyond the scope of existing tools.

If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

N/A

Additional Governance And Document Upload

Please identify why the project is innovative and has not been tried before

Future Up is innovative because it replaces traditional assumption-led forecasting with integrated, hyper-local, data-driven methodologies that dynamically update based on real-world delivery plans.

Relevant Foreground IPR

N/A

Data Access Details

The SP Energy Networks data access policy can be found here.

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

The project is not business as usual due to the technical, operational, and integration risks associated with deploying these methodologies at scale. NIA support is required to manage these risks and to enable learning that would not be deliverable under standard funding arrangements.

Please identify why the project can only be undertaken with the support of the NIA, including reference to the specific risks(e.g. commercial, technical, operational or regulatory) associated with the project

The Project can only be undertaken with the support of NIA due to the technical, operational, and integration risks associated with deploying unproven forecasting methodologies at scale within live network planning environments.

Future Up involves the first large-scale integration of property-level EV, heat, and fleet demand forecasting with real-time stakeholder delivery plans, directly informing operational investment decisions. Errors or unintended consequences at this stage could lead to misaligned reinforcement, regulatory challenge, or customer detriment. Delivering the project at this scale is necessary to test integration with live planning systems and stakeholder inputs; a smaller-scale trial would not generate learning transferable to business-as-usual network planning

NIA funding enables these risks to be managed within a controlled innovation framework, allowing methodologies to be tested, validated, and refined before wider business-as-usual adoption. This approach protects consumers while generating learning that would not be achievable under standard funding arrangements.

This project has been approved by a senior member of staff

☑ Yes