NIA Project Registration and PEA Document

Date of Submission

Sep 2020

Project Reference Number

NIA_SSEN_0048

Project Registration

Project Title

Skyline

Project Reference Number

NIA_SSEN_0048

Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

Project Start

September 2020

Project Duration

1 year and 10 months

Nominated Project Contact(s)

SSEN NIA Programme Delivery Manager – Colin Mathieson

Project Budget

£811,623.50

Summary

In order to improve network planning to enhance customer experience on either EV load-related power interruptions or facilitating quicker connection times, there is a need for more timely and proactive information to be shared with DNOs. This will be facilitated with the ability to 'get ahead of the curve' and know when EV charging demand is likely to be seen on our networks before it happens.

Third Party Collaborators

CrowdCharge

Nominated Contact Email Address(es)

fnp.pmo@sse.com

Problem Being Solved

Across GB, the number of electric vehicles (EVs) are rising rapidly and Distribution Network Operators (DNOs) must ensure their networks are able to meet both the aggregated and localised growth in demand through the use of local flexibility solutions and investment in electrical network infrastructure.

Currently, the charge point installers need to notify the respective DNOs within 28 days after installation and commissioning of an EV charger that does not require an electricity supply upgrade or new connection. At this point, it is too late for DNOs to consider the network capacity and a potential need for network reinforcement, especially when the EV uptake increases. Moreover, the EV Driver and Vehicle Licensing Agency (DVLA) registration data is often updated quarterly with lags from the government and aggregated to a level which is unsuitable for use in managing local low voltage networks due to GDPR.

In order to improve network planning to enhance customer experience on either EV load-related power interruptions or facilitating quicker connection times, there is a need for more timely and proactive information to be shared with DNOs. This will be facilitated with the ability to 'get ahead of the curve' and know when EV charging demand is likely to be seen on our networks before it happens.

There is currently no system for early notification of enquiries or orders for EV chargers or EVs themselves. Early visibility will allow DNOs to use the lead times to better plan for the required network investments or alternative solutions to support the uptake of EVs where they will most likely connect to.

Method(s)

The solution will be a step towards a central asset database of domestic electric EV charge-points, providing detailed visibility of their geographical emergence as early as possible. In order to achieve this, the project aims to:

·   Establish and test mechanisms, in consultation with EV suppliers, EV charge point operators, installers and dealers to enable sharing of vehicle and charger enquiries and orders far sooner than that of the current post-installation notification;

·   Develop an EV asset database, with notifications to the DNOs via an Application Programming Interface (API) – ensuring compliance with General Data Protection Regulation (GDPR) and any related data privacy obligations;

·   Produce visually indicative maps or via the EV database, generate reports to support DNO planning for EV uptake; and Additionally design and test a new housing development alert system, predicated on the need for all new housing developments to have EV chargers installed in the future.

Scope

The project consists of the following three stages:

Stage 1 – Define data requirements, identify and engage with stakeholders

Identify all available sources of information and agree the significant factors
Engage with stakeholders (EV charge point operators, installers and dealers, as well as EV suppliers)
Identify barriers to collaboration and data sharing, including compatibility with DNO systems / requirementsCreation of a draft contract template agreement for data sharing
Agree system ownership, usage and commercial arrangements
Early notification of housing development design and testing

Stage 2 – EV database development and data partner readiness

Develop the EV database
Sign up data sources from the identified stakeholders
Customise database and create API / data interface for sources. Test with existing data sources
System test and sign off for trials
EV API development

Stage 3 – Trial and report

Launch and trial of the system, bringing on selected data sources
Test EV API to enable provision of Meter Point Administration Number (MPAN) level data to streamline charge point installation process
Trial evaluation and validation of results
Dissemination of project learnings and attendance at events (e.g. Low Carbon Networks Innovation conference)

Objective(s)

The project objectives are:

·   Identification of data requirements, targeting and engagement with key third-party data source companies for early visibility of EV charging connections

·   Address barriers and sign agreements with Data Source Companies

·   Create a database that will link to the data sources and provide the DNOs with the required EV data

·   Conduct a six month trial of the system
Develop proof of concept ready to scale to Business-As-Usual

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The project will be deemed successful if it meets the following criteria:

Acceptable commercial arrangements with data source owners and improved visibility of EV activities

Development of an EV charging database and API
System trial undertaken with supporting knowledge capture reports

Project Partners and External Funding

Skyline was set up via the Energy Innovation Centre (EIC) and it is a collaborative project between Scottish & Southern Electricity Networks (SSEN) and UK Power Networks (UKPN). SSEN will be leading the project and ElectraLink and Crowd Charge are the nominated suppliers. The cost of the suppliers will be shared 50/50 between SSEN and UK Power Networks. There is no external funding.

Potential for New Learning

The project team will work with the EV industry to understand what mechanisms would incentivise EV stakeholders (e.g. EV dealers, charge point installers and operators) to provide early notification of either EV or charger enquiry or purchase. New learning will come in the form of this engagement process and provide clarity of the potential costs and benefits for all parties involved in the charger installation process.

The EV database and API will provide insight on how many of the initial requests for EV chargers reach the final stage of the commercial process, which is the confirmed purchase of the chargers.

The new housing development alert will also explore the viability and effectiveness of notifing the DNOs of impending new housing developments that will be required in future to have charging infrastructure and other low carbon technologies installed. This proactive approach is a better option compared to the current arrangements where DNOs are typically informed when the developpers are well into the connection process.

Scale of Project

Possible engagement mechanisms will be designed and tested, in consultation with EV charge point operators, installers and dealers, as well as EV suppliers, to enable access to charger install or EV enquiries at the earliest opportunity – and in any event far sooner than the usual post-installation notification.

An EV asset database will be developed by Crowd Charge, with notifications going to the DNOs via an ElectraLink API – ensuring strict compliance with GDPR and data privacy.

The EV database will produce heat maps and reports to support DNO planning for EV uptake. In addition, ElectraLink will design and test a new housing development alert system, predicated on the need for all new housing developments to have EV chargers installed in future.

The project will look at data sources that cover all of GB and design testing for SSEN/UKPN areas. The proposed scale of the project is a key factor for generating higher benefits and learnings at the end of the project, particularly:

·   The more stakeholders (e.g. EV dealers, charge point installers, customers) are engaged, the better visibility the networks will have on their preferred incentives and appetite to share their data

·   The higher technology readiness level of the project outputs, the faster the solution can be integrated and deployed into Business as Usual by the DNOs
The more data assessed initially, the more learning there will be in relation to data suitability/availability and compliance with GDPR.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

Scottish & Southern Electricity Networks (Scottish Hydro Electric Power Distribution plc, Southern Electric Power Distribution plc)
UK Power Networks (London Power Networks plc, South Eastern Power Networks plc, Eastern Power Networks plc)

Revenue Allowed for the RIIO Settlement

No revenue has been allowed for this project in the RIIO-ED1 settlement.

Indicative Total NIA Project Expenditure

For SSEN, the total expenditure for the project is £ 378,706.50. 90% (£340,835.85) is allowable NIA expenditure.

For UKPN, the total expenditure for the project is £432,917.00. 90% (£389,625) is allowable NIA expenditure.

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:

n/a

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

n/a

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)

As the project aims to start delivering benefits in RIIO-ED2 period, the below estimations and assumptions refer to the RIIO-ED2 period only.

Currently, the EV uptake within the UKPN license areas represents about 1/3 of the overall uptake in GB. Therefore, the project is estimated to save customers for the whole GB approximately £3.5m in network reinforcement during RIIO-ED2, based on the estimations below and provided that all DNOs would use the data in the same way.

Please provide a calculation of the expected benefits the Solution

Having better EV visibility could enable more efficient deployment of smart interventions and improve investment planning, maximising the utilisation of available network capacity. For the distribution substations that need to be upgraded due to increasing EV uptake in RIIO-ED2, UKPN estimates that improved network planning could defer reinforcement for 129 secondary substations for an average of two years which equates to about £1.17m of benefits for UKPN.

Base Cost: the average cost of reinforcement for a secondary site including some cable replacement work is £135k: £135k*129=£17.42m

Method Cost: the present value of the a 2-year deferred reinforcement is £126k: £126k*129=£16.25m

Benefits: £17.42m-£16.25m = £1.17m

*The figure is assumed for the whole period of RIIO-ED2. It doesn't include the potential cost of third party data if applicable.

In addition to deferred reinforcement, the project will also result in the following benefits:

Proactively identifying areas with high potential EV uptake may prevent unplanned disruption and increase efficiencies in reinforcement-related costs that pass on to customers. Customers will benefit from an improved "customer journey" when considering the purchase of an EV, thus facilitating progress to Net Zero
By using data of high granurality such as MPANs, the DNOs will be better equipped to evaluate the relevant local networks and assist with the customers' enquiries for EVs. Therefore, customers will be able to benefit from a streamlined EV charger installation experience by virtue of the charger supplier having access to the right level of data via the API to support the notification process

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

This is a challenge for all GB DNOs as they all use the similar charging point notification process which is delayed and incomplete. The EV database and API developed in this project could be replicated across the whole of GB.

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

Assuming the trials do not need to be repeated once proven successful and that the learning from all the third party engagement can be applied across GB, the cost to roll out the Method mainly depends on the commercial arrangement with the third party data sources and the incentive mechanism developed. This is about two thirds of the project costs (£270k) so rolling out the same Method to the other four DNOs will be approximately £540k. However, the exact cost of rolling out will be determined by the success of the Method and will be an output from the project itself.

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

n/a

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

This project is addressing challenges associated with decarbonisation of transport and network flexibility as it will provide the DNOs the visibility over potential EV uptake and the chance to proactively utilise existing assets and smart technologies, instead of traditional reinforcement. This could influence network infrastructure programmes, thus responding to our customers' needs.

☑ Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

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.

The Energy Networks Association portal has been checked to confirm there is no duplication. This is an unexplored area due to the

complexity of procuring new data sources from multiple EV stakeholders. The other DNOs were invited to the initial call for idea and we continued to engage with them since. No concerns on potential duplication were raised.

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

There was minimal EV uptake in the past so there was not a need to have system in place for early notification of electric vehicle (EV) chargers before they are installed on the network. As UK public charge point installations continue to increase; from about 10,000 charging points by end of 2015 to over 33,000 in August 2020 according to Zap Map; this narrative is no longer true. The solution is envisaged to facilitate proactive network planning to manage the EV uptake.

Relevant Foreground IPR

n/a

Data Access Details

n/a

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

This is a new method which is yet unproved and needs to be better developed and validated to be introduced as business as usual. There are significant risks associated with the acquisition, integration and the overall usefulness of third party data which need to be tested first.

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

As noted in the NIA guidance, certain projects are speculative in nature and yield uncertain commercial returns. This is the case with this project. There is a commercial risk that the solution trialled in the project is not adopted at the end of the project. This could be due to the fact that the solution has not reached the level of maturity required for business-as-usual application. The appetite of EV stakeholders to share their data for the benefits of network customers is also highly uncertain so there is risk around contract negotiations to set up data sharing agreements. If the project is successful, it will have proven a technical and novel solution which will provide EV chargers visibility.

This project has been approved by a senior member of staff

☑ Yes