

NIA Project Registration and PEA Document

Date of Submission

Apr 2020

Project Reference Number

NIA_SSEN_0046

Project Registration

Project Title

Local Electric Vehicle Energy Loop (LEVEL)

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NIA_SSEN_0046

Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

Project Start

April 2020

Project Duration

1 year and 7 months

Nominated Project Contact(s)

Kate L Jones – Project Manager

Project Budget

£320,000.00

Summary

This project will be supported and delivered in conjunction with the Scottish EV Strategic Working Group and will develop a standard and specification of temporary and portable EV charging infrastructure devices to provide provisional capacity to meet short term demand in a location.

Nominated Contact Email Address(es)

fnp.pmo@sse.com

Problem Being Solved

The Scottish Government have committed to phasing out petrol and diesel vehicles by 2032, eight years ahead of the rest of the UK. Electric vehicles (EVs) and the supporting charging infrastructure, will be critical to delivering this ambition. Increased use of EVs requires greater resilience of the electricity network. During one off events (such as bank holidays, Highland Games, Gala Days etc.) and faults, temporary Electric Vehicle charging may be required to meet demand.

This project will be supported and delivered in conjunction with the Scottish EV Strategic Working Group and will develop a standard and specification of temporary and portable EV charging infrastructure devices to provide provisional capacity to meet short term demand in a location. The project will purchase physical devices and demonstrate their use within the SHEPD area. This project's moveable charging infrastructure could also be pre-deployed to locations ahead of bad weather forecasts to support local network resilience or retrospectively deployed until supply restoration is achieved.

Portable charging infrastructure would also be beneficial in use cases such as the following:

For unplanned incidents on the road network which could lead to delays for EV drivers and therefore provides contingency for EV Drivers along main roads e.g. A9/ A82 / A85 etc; and

Smart low voltage connection combined with smart charging located in public car parks to boost capacity during summer tourism period e.g. trickle charge battery storage during times of low demand to provide ability to meet peaks and to deploy fully charged devices.

In order to inform customers of the location of the devices, this project shall consider the development of an app such as SSENs Power Track to help pin-point the location of the device. Consideration must be given to how we work with the Priority Service Register

to optimize and prioritise the use of the devices.

This project will be delivered under the EV Strategic Partnership SSEN has with Transport Scotland and Scottish Government and will consider the ownership model of this infrastructure whilst considering needs of key stakeholders i.e. is SSEN best placed to own or is it more suitable for the local authorities or Scottish Government.

Finally, the project will consider implications for metering and settlement from temporary connections, building on learning from other innovation projects such as Resilience as a Service and Direct Current Share (Western Power Distribution's Network Innovation Competition project).

Method(s)

The method will follow the stages outlined below:

Stage 1 – Define & Procure Portable EV Chargers

This stage will define the standard and specification for the portable charging devices taking into consideration the requirements of all key stakeholders. The chargers will be procured as part of a 'call to innovation' tender.

Stage 2 – Operational Demonstration

This stage will outline how the chargers will be demonstrated against the sampled use cases and will include a live demonstration.

Stage 3 – Commercial Model Development

It may not be appropriate for SSEN to own the portable chargers; this phase will act as a stage gate to decide if the standard and specification developed in Stage 1 for the portable chargers is viable for wider roll out and provide recommendations for adoption of future roll outs via development of a commercial ownership model which will include a case benefits analysis.

If applicable, this stage will explore development of a new or existing app such as the SSEN's Power Track to show Electric Vehicle drivers the location of the portable chargers as well as understanding how its use can be prioritised for our Priority Service Register customers.

Stage 4 – Closure

The final stage will either pass ownership of the portable chargers to a third party leading on from stage 3 or transfer into Business as Usual (BAU) for operation. Learnings from the project will be disseminated to local and national stakeholders as well as network licensees.

This project will be collaborating and consulting with stakeholders such as Transport for Scotland, Scottish Government, local authorities and councils etc. All these stakeholders have significant knowledge and experience in their respective areas, which will help to ensure that the device is relevant and reflective of their needs.

Scope

The project will capture benefits for GB as a whole, from both a network planning and local stakeholders' perspective.

Objective(s)

- 1 Identify detailed use cases for these mobile charge points which will include cases where there is a need to coordinate their connection and operation with constrained networks.
- 2 Develop a standard and specification for portable temporary EV chargers with key external stakeholders to assist with network resilience and meet short term demand.
- 3 Procure and demonstrate an agreed specification for portable EV charger.
- 4 Identify the challenges of providing short term access to the network for temporary EV charging, including any regulatory changes that would be required to facilitate it.
- 5 Develop a commercial ownership model including a cost benefits analysis to understand the viability of wider roll out and adoption.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

If the project delivers the anticipated learning to GB stakeholders, then it is deemed successful. If the project delivers a conclusion on the usefulness of portable temporary EV charging infrastructure and passes on the learning for future adoption then it is deemed successful.

Project Partners and External Funding

The project will involve Transport Scotland Scottish Government partners. Funding could be provided from a third party to purchase additional charging infrastructure if the standard and specification proves viable to provide more learnings from Stage 2 and 3 of the project.

Potential for New Learning

Understand requirements for temporary EV charging e.g. battery size versus journey time for emergency.

Understand the local community requirements and the commercial ownership models with benefit analysis for transition to low carbon vehicles and how supporting technologies could be provided by SSEN or third parties to assist with network resilience.

Understand how SSEN can build stronger working relationship with Transport Scotland and Scottish Government which will improve knowledge on what is important to them and how energy utilities can incorporate their requirements and shape the future infrastructure developments.

The project learnings will be disseminated via a demonstration, a report and dissemination event.

Scale of Project

This small-scale project will, over 18 months, allow for a small demonstration for a portable charger.

Technology Readiness at Start

TRL5 Pilot Scale

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

Scottish Hydro Electric Power Distribution network area.

Revenue Allowed for the RIIO Settlement

n/a

Indicative Total NIA Project Expenditure

The total expenditure expected from the project is £320,000. 90% of which is allowable NIA Expenditure (£288,000).

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:

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)

This will be developed as part of stage 3 of the project.

Please provide a calculation of the expected benefits the Solution

The calculation is not required for a research project.

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

This is a challenge for all GB DNOs, so this could be replicated across the whole of GB.

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

The cost of rolling out will be determined by the success of the method and as a result the answer to this question 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

The outcomes from the project will be directly relevant to other network licensees as they look to address decarbonisation but continue to improve network resilience.

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 testing temporary EV charging infrastructure and the ability to provide when existing charging may be unavailable or compromised

- ☒ 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.

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

The project will look to develop new options for working with other industries to ensure resilience and adoption of EV charging infrastructure.

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 or to transfer to a third-party owner

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

Whilst commercial providers are beginning to provide temporary EV charging solutions on a standalone basis, at present there is no agreed way to facilitate short term network access to deliver temporary EV charging, or how best to design these temporary chargers to work with a temporary network connection. This project will investigate the use cases, commercial aspects and the regulatory changes required to facilitate this

This project has been approved by a senior member of staff

☒ Yes