

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

Jul 2020

### Project Reference Number

NIA\_UKPN0060

## Project Registration

### Project Title

White Van Plan

### Project Reference Number

NIA\_UKPN0060

### Project Licensee(s)

UK Power Networks

### Project Start

July 2020

### Project Duration

2 years and 4 months

### Nominated Project Contact(s)

Florentine Roy

### Project Budget

£604,000.00

## Summary

Over the past few years, DNOs have been working in the EV space to understand future customer needs and potential network impacts, to ultimately develop new technical and commercial solutions enabling future EV uptake in a timely and cost-effective manner. While the needs of residential customers and large commercial fleets in the EV transition is already being studied in ongoing projects, SMEs may have different needs, and they may struggle with transport electrification if there is no tailored strategy to address the specific challenges they may experience.

### Nominated Contact Email Address(es)

innovation@ukpowernetworks.co.uk

## Problem Being Solved

Small and medium-sized enterprises (SMEs) are defined in the UK as companies with fewer than 250 employees.

In 2019, there were nearly six million SMEs employing over 16 million people in the UK. They accounted for 60% of the employment and half of turnover in the UK private sector.

While SMEs are Distribution Network Operators' (DNOs) customers as power users, DNOs do not have a clear understanding of their specific transport decarbonisation needs in comparison to other customer segments at present. In certain circumstances, SMEs may be considered "hard-to-reach" customers.

With the UK's 2050 net zero target and the ongoing electrification of transport, how will SMEs be impacted? If SMEs want to transition to EVs, how can DNOs support them?

Over the past few years, DNOs have been working in the EV space to understand future customer needs and potential network impacts, to ultimately develop new technical and commercial solutions enabling future EV uptake in a timely and cost-effective manner. While the needs of residential customers and large commercial fleets in the EV transition is already being studied in ongoing projects, SMEs may have different needs, and they may struggle with transport electrification if there is no tailored strategy to address the specific challenges they may experience.

## Method(s)

SMEs represent a large and diverse group. This project will aim to research this group with the following steps:

1. Desktop research (literature review, analysis of secondary data) to build hypothesis on SME use of transportation;
2. Qualitative and quantitative primary research/data gathering to refine findings and bridge gaps;
3. Segmentation of the SME group by transportation use type;
4. Investigation of SME segments/archetypes and their specific needs/interests in the EV transition;
5. Engagement with SMEs and development of communication strategies with this diverse group;
6. Network impact assessment of the SME segments transition to EVs; and Investigation of the potential for smart solutions to facilitate this transition, and assessment of the suitability for SMEs of technical and commercial solutions under development.

## Scope

The steps described in "Method(s)" will be undertaken for small and medium-sized enterprises (sole traders to businesses with up to 249 employees) in UK Power Networks' three licence areas.

## Objective(s)

1. Get to know the SME customer group and segment it into transportation-relevant categories. Understand their technical, operational and commercial specific needs;
2. Investigate the interests and needs of SME categories in transitioning to EVs;
3. Engage with SMEs to establish an efficient communication structure with each SME segment;
4. Investigate the potential impacts on the network of SME transport electrification; and Investigate the potential network solutions to facilitate EV transition specific to SME segments.

## Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

## Success Criteria

The success of the project will be determined by the completion and approval of a series of key deliverables:

- Literature review and secondary data analysis results;
- Qualitative and quantitative primary research methodology, results and analysis;
- Transportation use-based segmentation of the SME group;
- For each SME segment/archetype, identify the specific needs and interests in the EV transition, the potential support that DNOs can provide in this transition and a communication strategy to engage efficiently;
- Geographical mapping of SMEs by archetype within Eastern Power Networks, London Power Networks and South Eastern Power Networks licence areas;
- An understanding of the resulting network impacts from SME transition to EVs;
- Potential for and applicability of smart solutions for each SME archetype; and Assessment of the suitability for SMEs of existing offerings for transition to EVs.

## Project Partners and External Funding

Organisations to support the delivery of the work will be appointed via a competitive tender. There is no external funding.

## Potential for New Learning

This project is expected to generate the following learnings:

- Segmentation of the SMEs customer group based on transportation needs;
- Specific needs and interests of each segment in the EV transition;

- Communication strategies to engage efficiently with each segment;
- Suitability of commercial and technical solutions under development for the transition of SMEs to EVs;
- Extent of network impact expected from SME transport electrification.

Subject to restrictions resulting from COVID-19, a learning dissemination workshop will be held in each of UK Power Networks' three licence areas to present key project findings.

A final report summarising the approach and key learnings from the project will be published.

### **Scale of Project**

The project will cover all three licence areas operated by UK Power Networks. This will enable to gain specific learnings from urban to rural areas.

### **Technology Readiness at Start**

TRL2 Invention and Research

### **Technology Readiness at End**

TRL4 Bench Scale Research

### **Geographical Area**

The project will take place in UK Power Network's three licence areas.

### **Revenue Allowed for the RII Settlement**

None.

### **Indicative Total NIA Project Expenditure**

This project will cost £604,000 of which £543,600 will be NIA funded.

## 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 research project will aim to assess the suitability for SMEs of solutions already under development. These solutions aim to enable a faster and cost-efficient connection to the network. If suitable to this customer segment, encouraging smart charging from SME EVs, either under the form of existing solutions under development or new solutions if required, could enable network reinforcement deferral, which will deliver net financial benefits to customers.

Savings could be estimated following this project, once knowledge of SMEs and their willingness to shift their EV charging patterns has been investigated.

#### Please provide a calculation of the expected benefits the Solution

N/A – this is a Research Project.

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

This method could be applied across the whole of GB and applies to all network licensees, since SMEs are based in all locations.

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

This project covers one of six DNO groups. Rolling out the method across GB would require network licensees to map the SME archetypes to their licence areas, and to assess the impacts of transport electrification on their network. The cost of rolling out the method across GB is estimated to be £400,000.

### 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

#### RIO-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

Relevant Network Licensees will be able to use learnings about SMEs from this project to improve their customer service. SMEs are a customer segment that is applicable across all DNOs.

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

N/A

- 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.

There is no duplication occurring as part of this project as this SME transport electrification has not been studied previously.

#### 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

EV-focused innovation projects have not covered the needs of SMEs so far. UK Power Networks' extensive stakeholder engagement around EVs highlighted the fact that SMEs may not have the same needs than residential customers or large fleets when considering their transport electrification.

#### 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

Currently there is no detailed understanding of the SME group nor efficient structure to communicate with SMEs. Therefore a significant piece of detailed research is required and the outcome of such research is uncertain. A better understanding of this large and diverse customer group will be key to improve customer service, and more specifically to facilitate the transport electrification journey for SMEs. Due to the risk involved in the project and the uncertainty around the benefits that smart solutions (e.g. smart charging) could deliver to this customer group, these activities would not form part of our business as usual activities. In order to progress an innovative project which carries significant risk in implementation, additional innovation funding is required as a stimulus.

## **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 as a research study given the fact that electrification of transport for SMEs is an unexplored territory for distribution networks operators. As noted in the NIA guidance, certain projects are speculative in nature and yield uncertain commercial returns. This is the case for this project. There is a commercial risk that the investment in such a detailed research piece would not directly result in tested solutions that can be deployed by DNOs to facilitate the EV uptake for SMEs. The objective of this project will be to investigate what is required to support SMEs throughout their journey and either confirm that the existing services and solutions are suitable for SMEs, or that alternative tailored solutions should be developed. This will ensure that SMEs are not left behind in the transport decarbonisation journey.

## **This project has been approved by a senior member of staff**

Yes