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

Nov 2020

Project Reference Number

NIA_UKPN0069

Project Registration

Project Title

Socially Green

Project Reference Number

NIA_UKPN0069

Project Licensee(s)

UK Power Networks

Project Start

November 2020

Project Duration

3 years and 2 months

Nominated Project Contact(s)

Dean Mason

Project Budget

£1,000,000.00

Summary

Historically, the distribution network operators' (DNOs) role and interaction with customers was mostly led by the need to manage outages. As we transition to a distribution system operator (DSO) and customers choose to interact with the network for other services, it is important to reconfigure our services to address the needs of all our customers.
It is fundamental for network services to be inclusive and fair, to make sure that no one is left behind as we transition to a net zero future. The increased uptake of low carbon technologies (LCTs) integrated into our network may result in early need of network reinforcement if flexibility can't be procured from customer side due to exclusion. There is a need to increase our understanding of future vulnerability and disadvantage in a world that is transitioning to net zero. Currently no comprehensive customer segment mapping in this context is available and this gap is a limitation to networks' ability to support vulnerable customers (VCs) in an effective way.

Nominated Contact Email Address(es)

innovation@ukpowernetworks.co.uk

Problem Being Solved

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Method(s) please see Table 3.1 on Page 16 of NIA Governance Document v3.0 for reference.
Socially Green will focus on qualitatively and quantitatively assessing the needs of our current and future disadvantaged and vulnerable customers. This aims to help UK Power Networks adapt services to support a sustainable, fair and accessible energy system.

The main expected output from the project will be a comprehensive understanding of our VCs and disadvantaged customers and a new set of priorities and enhanced services to deliver the most benefits to the wider system. We will then test new services aimed at mitigating identified barriers creating a system that will be more inclusive, fairer and better suited to the needs of our current and future VCs and disadvantaged customers. Our hope is to design and evaluate new services and partnerships that will result in higher levels of inclusion during the net zero transition.

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All data used within this project is for the purposes described above, and therefore quality will be measured on this basis. The project will follow all data quality rules, logging, and prioritising issues as they arise in line with the approved methodology set out in our Enterprise Data Management Policy, which forms part of the UK Power Networks Integrated Management System.

Data quality will be measured across five dimensions where applicable:

- Accuracy
- Completeness
- Consistency
- Validity
- Uniqueness

Data quality rules for each of the appropriate data quality dimensions above will be set by the project, measuring them closely on a regular basis to identify quality issues.

Data quality issues will be logged in a central location and prioritised using an approved matrix which combines the importance of the issue, and the amount of data affected, this gives an indication of the issue's impact on the project and wider business, considering factors such as:

- The impact on the health and safety of the public and employees
- Whether it may result in a breach of our licence conditions or relevant regulations
- The impact on UK Power Networks' reputation
- The impact on our operations and efficiency
- The financial impact, including project delays and charges from external service providers

The project will then seek support for resolving the issues in priority order. All data and background information will be stored centrally and securely in a project specific Sharepoint folder or in our Enterprise Data Store if required by the wider business in accordance with data protection requirements.

Scope

In phase 1 we seek to identify the different customer segments to understand what support our VCs and disadvantaged customers need through the net zero transition. We aim to understand this through a comprehensive review of activities in this sector so far while exploring any gaps identified. This could help us in highlighting the key cross sector partnerships required in future. Phase 2 will estimate how and where customers may be impacted, offer insight through localised data while providing guidance to improve and add future services. Phase 2 will also recommend a set of novel services to test feasibility and verify effectiveness. Phase 3 seeks to conduct trials to gather empirical evidence to support the findings from Phases 1 and 2. The project was extended until July 2023 in

order to commence Phase Three of the project which will design and implement the “Flexibility for All” concept as per the original Project Scope. There was no additional cost allocated to the project budget in order to complete these activities.

Objective(s)

The main output from the project will be a comprehensive understanding of future customer vulnerabilities and localised service needs. The implementation of a new range of services and solutions will result in an improved service that will be more inclusive, fairer and better suited to the needs of our future VCs and disadvantaged customers. This will support better access to the benefits associated with the net zero transition.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

The project is steered towards supporting vulnerable customers and will not have any additional impact on fuel poverty. In summary, the project aims to:

1. Identify future customer vulnerabilities segments or hard to reach areas and explore localised flexibility service to meet their needs. This will enable higher levels of inclusion during the net zero transition.
2. Design and evaluate new services and partnerships in addition to a new set of priorities and enhanced services to deliver more flexibility which will result in benefits for the wider system.

Success Criteria

The project will be considered successful if:

-we have insights into future customer exclusion
-we have a better understanding of local customer needs and potential services to mitigate future exclusion
-we have an understanding of the benefits of innovative methods in addressing identified barriers
-we have trialled novel methods of mitigations to verify their effectiveness

Project Partners and External Funding

Project partners are to be confirmed after our selection process.

Potential for New Learning

The project aims to:

1. Identify VCs and disadvantaged customers, and determine the impact the net zero transition will have in delivering an inclusive and fair service to them

2. Identify localised future needs

3. Demonstrate the capability of certain services through trial

The learnings from this project will support DNOs in having a proactive approach in tackling exclusion during the net zero transition. It will explore holistically and localised changes in customer needs and the effectiveness of innovative mitigation methods through new services and partnership.

Scale of Project

The scale of phases 1-2 are the minimum necessary to provide both distribution level and localised insight with some allowance for feedback from key industry stakeholders.

The project costs are mainly in the trial phase (phase 3) as we are aiming to run several trials (a minimum of three localised solutions/services) for a 12 month period.

A pure desk study would not be novel, and would lack the granular insight that UK Power Networks seeks in helping vulnerable and disadvantaged customers. The localised trials are necessary to verify the effectiveness of key new services.

Technology Readiness at Start

Technology Readiness at End

TRL3 Proof of Concept	TRL7 Inactive Commissioning

Geographical Area

EPN, LPN, and SPN.

Revenue Allowed for the RIIO Settlement

No allowances were allowed in RIIO settlement to address the specific issue targeted in this project as this is looking at widening customer exclusion definition in a DSO/net zero world.

Indicative Total NIA Project Expenditure

The total expenditure that UK Power Networks expects to incur for this project is £832,250 from NIA funding.

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:

The main output from the project will be a comprehensive understanding of future customer vulnerabilities and localised service needs. The implementation of a new range of services and solutions will result in an improved service that will be more inclusive, fairer and better suited to the needs of our future VCs and disadvantaged customers. This will support better access to the benefits associated with the net zero transition.

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)

Within the five years of ED2, it is estimated that the savings could sum up to £1 million from deferral of reinforcement achieved through flexibility procurement.

This was calculated based on analysis of LV flexibility tender requirements and estimated reinforcement scheme costs.

Please provide a calculation of the expected benefits the Solution

The benefits calculated are achieved through flexibility provision by domestic customers and therefore deferring reinforcement. The costs were based on:

- Reinforcement triggered by LV demand as base cost

- Flexibility procurement cost as method cost. This will also be a source of income for domestic customer as suppliers/aggregators/community energy providers will be sharing the revenue obtained through flexibility provision.

The costs included are based on our LV flexibility needs predicted in our tender in the period of 2023-28.

Other benefits, particularly localised trial benefits from the project and wider social return of investment and carbon savings, will be evaluated before the start of phase 3.

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

This could be rolled out to all licence areas, as all licensed network operators have a vulnerable and disadvantaged customer base.

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

The annual method costs are in the order of £165k [UK Power Networks annual cost / three licence areas * 14 licence areas]

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

DNOs will get an understanding of the barriers to LCT adoption for vulnerable customers, as well as how to approach the specific localised issues that may augment adoption levels.

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

☑ 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.

Whilst similar projects have been undertaken to evaluate how communities are excluded from specific LCT access, no one study has attempted to evaluate the wider spatial-temporal effects of how vulnerable communities may be impacted. In addition, this project will seek to perform trials not performed by any network operator before.

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

This project will be investigating the changes in customer needs in a transitional world. Unlike previous research and trials, the project will focus on system change at a distribution level and offer insights that is both localised and wider. The project will test the potential benefits of extending DNO/DSOs' roles for excluded customers. In the past it has been proven that locational relationships with communities can prove beneficial to both customers and system operators but a seamless integration between service and demographic needs and net zero transition is yet to be tested. Overall the topics investigated in phase 1-2 are beyond current DNOs' role and a level of uncertainty is associated with this. Similarly phase 3 will be testing methods with low technology readiness level and therefore a higher risk. This project will support understanding of novel approaches and mechanisms in delivering services supporting customers and the need to decarbonise efficiently and effectively.

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

The project will involve a broad future focused research with uncertain modelled elements and several higher risk trials that will test integrating and supporting services for excluded customers in the LCT transition. The level of risk, the lower technology readiness level and the overall uncertainty of the business case imply that these activities can't be carried out as part of UK Power Networks' BaU activities.

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 NIA funding will allow UK Power Networks to undertake a project which has technical and commercial risks associated with it, in terms of a lack of certainty on results. As explained in the previous point (ii) the project will involve several higher risk activities that need to be undertaken with NIA support: • the research is broad and future focused which is innovative but might result in inconclusive findings • the analytical phase will involve forecasting and modelling of customer exclusion beyond the current definition and role as distribution network operator • the premises behind the research and modelling are laced in uncertainty around the different energy scenarios, uptake of low carbon technology, policy change and customer changes • the planned trials are expected to be at a lower technology readiness level and will require co-designing and further development before it can be considered mature and lower risk enough to be a BaU activity

This project has been approved by a senior member of staff

☑ Yes