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NIA Project Registration and PEA Document

Date of Submission

Dec 2020

Project Reference Number

NPG_NIA_035

Project Registration

Project Title

Covid Vulnerability

Project Reference Number

NPG_NIA_035

Project Licensee(s)

Northern Powergrid

Project Start

December 2020

Project Duration

0 years and 7 months

Nominated Project Contact(s)

Dr. Mary Black

Project Budget

£30,000.00

Summary

C19 Vulnerability assessment, working with Supergen and National Energy Action.

Nominated Contact Email Address(es)

yourpowergrid@northernpowergrid.com

Problem Being Solved

During the current COVID19 (C19) emergency critical infrastructure is more than usually vital. This includes the energy networks.

In order for these networks to operate effectively and resiliently, network design and shorter term planning needs to be done in expectation of network demand. However, predictions of the patterns of this demand have no historical basis in a period of such change in working and home life patterns.

Consequently there is currently an opportunity to understand the impact of such a radical change in societal behaviour and electricity usage patterns and therefore to identify considerations for future planning. The impact on more vulnerable customers is likely to be different to that for the population as a whole.

The impact on such planning would be useful anyway but changes in usage behaviour may also be useful in assessing the general impact of movement to DSO and in the specific impact on more vulnerable customers - this is likely to be different to that for the population as a whole.

The uncertain nature of the current emergency means that there is a relatively small window of opportunity to develop the required understanding.

Method(s)

The Supergen Energy Networks Hub, based at Newcastle University/Centre for Energy Systems Integration, with National Energy Action (NEA) will undertake a relatively brief piece of work to survey households to understand the changes in energy and energy network usage resulting from the current C19 event.

This comprises of three phases:

1. Survey of Households

This will cover all aspects of home energy and energy services: heating, lighting, cooking, appliances etc. as well as questions to identify fuel poverty risk, ability to achieve affordable warmth, energy-use practices and occupancy, changes to income and financial resilience, and perceived differences in energy costs. The questionnaire will also cover advice and support needs, as well as provision and access.

2. Rapid evidence review

The survey and interview topic guides (data collection tools) will be informed by a mini rapid evidence review that will examine evidence and insights to date on the impact of COVID19 on vulnerable energy consumers, and the response of government, the energy industry and consumer representative and advice groups (e.g. NEA, fuel poverty research network and Citizens Advice etc.). The review will also include a précis of the current policy landscape relevant to the project, including fuel poverty policies, energy industry and consumer group responses and government policy and regulation

3. Analysis, synthesis and reporting

NEA will work with Newcastle University and NPG to produce relevant policy and practice facing outputs, key messages and calls to action. The aim being, to help shape and direct action and support to vulnerable energy consumers from as early as winter 2020/21 and going forward. This ability to undertake early intervention is facilitated by the rapid evidence review methodology.

The network implications of the findings will also be assessed with a view towards short, medium and long term planning and DSO transition, particularly with respect to vulnerable customers.

NEA will provide input and support to the Newcastle University lead in production of the final report and other relevant outputs

Scope

The scope is confined to domestic customers in areas of relative fuel poverty and deprivation and seeks to assess changes in their energy usage and their behaviour with respect to interactions with the energy system as a result of the current Covid 19 emergency.

Objective(s)

The objectives of this work are to:

Understand the implications of changing patterns of energy demand on vulnerable customers. (ie those in fuel poverty, or at risk of fuel poverty either before, during or (in the future) after the lockdown 19.

Further, to understand both how energy demand changes over time during the stages of lockdown and recovery, as well as to understand the underlying reasons for those changes.

The implications of these findings for future development of electricity networks, both within the current DNO role and the future DSO role will be identified

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Delivery of the objectives described above would constitute a successful outcome for this small-scale activity.

Project Partners and External Funding

This project is supported by the Supergen Energy Research Hub and NEA. Both are bringing their expertise to bear on the project and are ensuring that the project methodologies and outcomes are consistent with other similar work being undertaken and aimed at the broader energy system and customer base. In the case of NEA they also act to ensure that this work generates the maximum benefit and advocacy for vulnerable customers.

This consortium approach allows the leverage of this relatively small piece for broader network benefit in the medium to long term.

Potential for New Learning

Several key questions will be addressed:

- Does the existing definition of fuel poverty adequately capture vulnerable customers who may be seeing dynamic changes in their
 - o Income (furlough, unemployment, self-employment income changes)
 - o Energy use (at home more often, more individuals at home than previously, increased appliance heating and hot water use due to changed occupancy or changed activities)
- How are individual and household energy uses changing?
 - o Greater/lesser appliance use for home working
 - o Greater/lesser appliance use for home schooling
 - o Greater/lesser cooking energy demand due to changed occupancy
 - o Greater/lesser hot water demand due to increased hand washing/washing up/changed occupancy
 - o Greater/lesser space heating demand due to increased occupancy

Scale of Project

The scale of the project is relatively small and anticipates surveying less than 50 households.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL4 Bench Scale Research

Geographical Area

The study area has been identified as North Tyneside. This area would be typical of many other areas of relative fuel poverty and relatively higher vulnerability across the GB network.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

£30,000

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)

TRL3 – project has no direct benefits at this stage of technological maturity

Please provide a calculation of the expected benefits the Solution

TRL3 – project has no direct benefits at this stage of technological maturity

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

All licensees have areas of relative deprivation within their network area. As such the finding of this work will be directly relevant and applicable to all other GB networks. The general findings will be relevant to gas as well as electricity networks

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

N/A. Application of the knowledge generated does not require capital or operational investment.

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

All licensees have areas of relative deprivation within their network area. As such the finding of this work will be directly relevant and applicable to all other GB networks. The general findings will be relevant to gas as well as electricity networks and applicable to all.

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

Customer vulnerability with respect to energy, particularly electricity supply, is a specifically identified need in the Northern Powergrid innovation strategy.

- 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 indication that similar work has been undertaken. Enquiries with other ENA members indicate that duplicate work is not underway.

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 is predicated on the current COVID19 emergency and its impact on vulnerable/fuel poor customers.

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 is speculative in nature with uncertain outcomes and business benefits. Any such benefits are unlikely to benefit the business.

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

Project outcomes are uncertain and the project is at a low level of technological maturity. Any direct benefits are likely to accrue to vulnerable customers and probably primarily during ED2 or ED3.

This project has been approved by a senior member of staff

Yes