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 2018

Project Reference Number

NIA_WWU_050

Project Registration

Project Title

Project REACH (Reaching Everyone and Connecting Homes)

Project Reference Number

NIA_WWU_050

Project Licensee(s)

Wales & West Utilities

Project Start

July 2018

Project Duration

0 years and 6 months

Nominated Project Contact(s)

Nigel Winnan

Project Budget

£213,333.00

Summary

This project will produce datasets that will demonstrate that households are genuinely suffering from fuel poverty and confirm that all alternatives to a subsidised gas connection have been explored and costed to produce an optimum solution. A web app will be produiced, that customers can use to determine whether they are eligible for support and if not eligible then some viable renewable alternatives.

Nominated Contact Email Address(es)

innovation@wwutilities.co.uk

Problem Being Solved

Originally it was proposed by OFGEM to remove the existing Fuel Poor Network Extension Scheme (FPNES) eligibility criterion from 1st April 2018. However, in the final determination this has now been extended by three months until 1st July 2018. Currently the government's Index of Multiple Deprivation (IMD) policy applies where eligible households "must reside within the UK's 25% most deprived areas" and this will now remain the case until the end of June 2018.

It has now been confirmed that to ensure more effective targeting of the fuel poor that the IMD option will no longer apply from 1st July 2018. As such Gas Distribution Networks (GDNs), including WWU, are required to adapt their methods of engagement to identify those eligible for a gas connection and have to "take all reasonable measures to achieve their targets".

WWU want to demonstrate that they can satisfy any new regulatory challenges by being proactive and innovative around identification of fuel poor households. As a minimum WWU would require an analysis which could potentially extract relevant Local Authority (Unique Property Reference Number) UPRN's; Energy Performance Certificate (EPC) Serial Numbers; Private Rented Sector (PRS) Register; Radial Mapping Data & BEIS Regional Data and a method for translating this data to target fuel poor households for the next phase of the scheme. A webapp would be an ideal way of demonstrating this dataset and this would allow WWU to identify fuel poor households in a very cost effective manner that could also be easily updated if future regulations or other market drivers came into play.

From these data streams, WWU could demonstrate that households are genuinely suffering from fuel poverty and confirm that all alternatives to a subsidised gas connection have been explored and costed to produce an optimum solution. The ultimate ambition would be to have a customer facing webapp that could be used as an engagement tool which would demonstrate which customers would be eligible for support and if not eligible then some viable renewable alternatives.

Method(s)

Egnida Consulting (Egnida) will undertake a two phase project:

Phase 1, the pilot project, will focus on the development of the methods and tools and on the assessment of the results using case studies; and Phase 2 will focus on the expansion and refinement of the scheme.

Phase 1 - Pilot project

We will use data from Cardiff, Rhyl and Prestatyn to pilot the process outlined below:

Work package 1 - Initial data analysis:
In this work package WWU would work with Egnida to collect, clean and analyse the necessary datasets to prioritise the off-gas grid properties based on connectivity to the network and on fuel poverty likelihood.

Task 1.1 - Data source collation and cleaning (Anticipated duration: 3 weeks)

Egnida will work with WWU to establish the data sources that WWU already have for this analysis, including the list of connected and off-gas grid properties and the shapefiles of the gas network (for use in GIS software). Egnida will then use additional datasets needed including the Ordnance Survey AddressBase datasets (Ordnance Survey, 2018) for the properties in the required locations to proceed with the identification of the priority areas based on connectivity with the network. To identify the properties that are more likely to be in fuel poverty Egnida will collect EPC data and fuel prices sourced from national statistics (BEIS, 2018). Egnida will work with Experian to obtain income level data for the targeted postcodes (net income and housing expenses datasets) (Experian, 2018). Where appropriate and available, the Welsh Housing Conditions Survey data would also be retrieved to better inform the fuel poverty calculations. Data cleaning processes would ensure that all datasets provide useful and correct information for the pilot cases.

Task 1.2 - Identifying priority areas close to gas grid connections (Anticipated duration: 2 weeks to initiate after task 1.1 has been signed off)

Using the shapefiles provided by WWU, Egnida will model the current gas network in GIS. Based on the list of off-gas grid properties and the Ordnance Survey AddressBase datasets, Egnida would run an analysis to identify the households that are within a connectable distance from the existing gas grid. Egnida will also look to systematically identify major infrastructure constraints such as watercourses and railways that would form an additional barrier to connection. A ranking methodology would be then deployed to prioritise the properties based on connectivity to the network.

Task 1.3 - Analysis of likelihood of fuel poverty (Anticipated duration: 2 weeks to initiate after task 1.2 has been signed off)

For the estimation of fuel poverty the government is currently using the Low Income High Costs methodology (LIHC) (BRE, 2017). As the name suggests, there are two main parts forming the methodology: the household income; and the household fuel expenses. For the calculation of the household income for each of the targeted properties, the datasets from Experian would be used. Egnida would use Net Income by postcode data from Experian to augment EPC and Ordnance Survey data. From the net income dataset the housing costs (i.e. mortgage and rent payments) would be deducted to calculate the After Housing Costs income (AHC income). For the fuel expenses Egnida would use EPC data to estimate likely energy use for the properties based upon floor area and building archetype. Egnida would then apply fuel prices to identify the household's fuel expenses. Once household income and fuel expenses have been calculated, Egnida could apply the government approved methodology to calculate which of the off-gas grid properties fall under the Low Income High Costs category and are therefore identified as fuel poor. Using this methodology the fuel poverty gap for each of the properties would also be identified to highlight which of the properties are deeper in fuel poverty than others. This metric would then help inform as to which households should be prioritised further. The use of alternative fuel poverty methodologies, such as the 10% indicator, will be explored as well.

Work package 2 - Refined data analysis and customer engagement:

Task 2.1 - Customer facing web-app design (Anticipated duration: 7 weeks to initiate after task 1.3 has been signed off)

In order to refine the baseline data Egnida will build a customer facing web-app which can be hosted and styled to match WWU's or one of its existing partner's web offerings that allows householders to log-in to see our preliminary results and make adjustments. This would use EPC data to allow the user to select their property from addresses which have an EPC lodged, in which case EPC data would be augmented, or add their property information manually. Egnida would seek to ascertain current heating method, floor space of the property, any heat efficiency methods already employed, household income and current energy spend. Egnida propose to include additional features within this web app such as simple modelling tools which allow the user to find potential renewable energy options for their home, such as a solar PV calculator, to a more rounded customer experience and to incentivise the sharing of data.

Task 2.2 - Market engagement strategy (Anticipated duration: 2 weeks to initiate after task 2.1 has been signed off)

Egnida will work with WWU and any suitable marketing partners to create a market engagement strategy for WWU or its partners to enact.

Phase 2 - Scheme expansion

If the data found in the first work package were found to be a cost-effective method of targeting fuel poor customers, producing quality data, then WWU working with Egnida would look to expand the scheme to the next band of most opportune customers. Egnida will use a list of properties within WWU's area not currently connected to gas to define those with the highest potential for connection based on geographic proximity to an existing gas connection.

It is assumed that the total number of properties in the WWU area without a gas connection is circa 611,000. We would expect the second tranche of applicants to be around 50,000 of the highest potential customers based on geographic location.

Scope

• The location of the pilot cases in North Wales for Rhyl and Prestatyn and in South Wales for Cardiff would enable testing of the webapp development across Wales from the early stages of the project and ensure that the methodology and tools developed are applicable and validated at large scale. Phase 2 would also expand the scheme further to capture the majority of eligible properties within WWU's area.

• Advice on implications of findings, presentation and recommendation for future developments.

Objective(s)

To identify priority areas close to gas grid connections using datasets and Geographic Information System technologies to estimate likelihood of fuel poverty level for households

To build a customer facing web-app that allows householders to log-in to see our preliminary results and make adjustments for their personal circumstances.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Identifying fuel poor off gas-grid households and the creation of a web-app that customers could use to determine if they are eligible for support

Project Partners and External Funding

Egnida Consulting (Egnida). No external funding

Potential for New Learning

• Develops new methods for the identification of off-gas grid fuel poor households with the potential to be connected to the gas network
• Improves understanding for market engagement

Scale of Project

This project is done at the relevant scale which is a desk top analysis of data and web app development. The project would not provide representative learning or cost materially less if implemented at a smaller scale.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL7 Inactive Commissioning

Geographical Area

This project initially looks at the pilot areas of Cardiff, Rhyl and Prestatyn (Phase 1) and expands to the wider area covered by WWU (Phase 2). The research could have an impact on all geographical areas of the network.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

External Spend: £160,000
Internal Spend: £53,333

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 project will provide long term savings to customers by providing the means to lower their fuel expenses, their fuel poverty gap or even moving them out of fuel poverty.

Please provide a calculation of the expected benefits the Solution

It is hoped that the app will help us connect 3,000 properties, the average cost saving for a customer switching to gas is £695. Thus if we connect 3,000 fuel poor customers we will be saving a total of £2,085,000 for the UK PLC

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

The method could be replicable across the entire GB gas ntework

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

We anticpate the costs will predominantly through purchase of the license for the web-app and sourcing the data relevant for each network.

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 methodologies developed, the modelling and the web application will enable the Network Licenses to more effectively identify the most vulnerable population, the fuel poor households, with potential for inclusion in the network and provide further energy solutions. This work will support the UK's aim to tackle fuel poverty.

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.

There are no available tools of this nature to our knowledge that have been developed.

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 provide a new methodology and a web app for better targeting of fuel poor off-gas grid households. This new method is needed as the rules around eligibilty have chnaged.

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

We know which customers are off gas and close to the network, but the other details are unknown about the house and occupiers. This project will ensure we are using the correct data to target the correct customers, however until the project is completed we are unsure what data is needed which is a risk to WWU.

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

We do not have the in-house skills to complete the project and Egnida have these skills/resources as well as access to numerous datasets. There is a risk that if we were to identify properties currently off gas that are economical to connect and then share this data with relevant third parties that connections could subsequently be low and our current allowance with RIIO 1 is about physically making the connection. This project will allow us to assess whether these connections would be made.

This project has been approved by a senior member of staff

☑ Yes