

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 2018

Project Reference Number

NIA_WWU_054

Project Registration

Project Title

Regional Future Energy Scenarios

Project Reference Number

NIA_WWU_054

Project Licensee(s)

Wales & West Utilities

Project Start

November 2018

Project Duration

1 year and 0 months

Nominated Project Contact(s)

Bethan Winter

Project Budget

£188,919.00

Summary

This project will develop a methodology for assessing how different regions are likely to respond to the availability of new heat eg. Air source heat pumps, transport eg. Hydrogen or electrical powered vehicles and green gas technologies which impact gas supply and demand requirements.

Nominated Contact Email Address(es)

innovation@wwutilities.co.uk

Problem Being Solved

A range of solutions are being researched and trialled which offer decarbonisation options for heat, light, power and transport through the use of renewable generation and green gasses, along with new technologies for heating and vehicles.

A number of forecasting projects and methodologies are developed by GDNs and DNOs. However, much of the forecasting is currently at a very high level (geographic areas) and focuses on either gas or electricity load.

Method(s)

The project will develop a methodology for assessing how different regions are likely to respond to the availability of new heat, light, transport and green gas technologies which impact gas supply and demand requirements.

Forecasts will be developed in conjunction with regional stakeholders such as Local Authorities, and take account of retro-fit as well as future development plans for new connections. Their involvement will help the project gain useful information on localised energy planning and is likely to assist stakeholder in developing robust proposals.

New drivers such as 'socio-economic' data will also be used to identify areas where residents are most likely to be able to afford to

invest in lower carbon solutions.

It is proposed that the WWU geography be segregated into a number of regions that take into account both Local Authority boundaries and the way they are fed from the WWU network.

The project will consider and complement work being done to produce UK trajectories of technology being developed in the Gas demand forecasting – Phase 2 project (NIA_ WWU_047), to understand the local considerations that will influence uptake. The outputs will also be in a format that they can be combined with regional forecasts developed by DNOs in our region so that a future phase of work can be undertaken to produce regional scenarios that are agreed by power and gas networks.

Scope

- Location: All parts of the WWU network will be assessed in order that a variety of approaches can be considered.
- A range of new customer types / behaviours to be considered including, electric and gas vehicles, green gas for entry, use of electric and hybrid heating and heat networks
- Report on implications of findings, presentation and recommendation for future developments

Objective(s)

The objective is to gain a better understanding of demand at local level leading to better investment decisions and lowest cost to the consumer – less risk of stranding assets and ensuring localised security and reliability.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Produce regional forecasts for the trial regions and a methodology which can be used by other networks.

Project Partners and External Funding

This project will be led by WWU with Regen SW as project partners

Potential for New Learning

- Provide clear evidence based understanding of the different ways in which local regions may develop and decarbonise
- Provide outputs in a format that can be combined with regional forecasts developed by DNOs so that in the future we can provide a combine gas and electricity regional forecast

Scale of Project

This project is done at the relevant scale which is a desk top study.

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

WWU Region

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

External project cost: £149,189

Internal Cost: £39,730

Total: £188,919

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 provide long term savings to our customers by providing better long term planning decisions. Optimising capacity management and network design through use of improved understanding has the potential to reduce the risk of unnecessary investment.

Please provide a calculation of the expected benefits the Solution

Research Project

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

Research Project

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

Research Project

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

This modelling together with other gas futures research and the WWU investment model will provide the networks with a holistic view and impact assessment allowing them to better predict future requirements for their Gas Networks allowing networks to plan future investment wisely. This work will support the UK's strategic aim to allow use of smart technologies to help decarbonise energy over the next 40 years.

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.

This is the first time that regional forecasting at this level has been carried out by gas distribution networks.

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

Gas demand forecasting has historically been carried out at a Local Distribution Zone (LDZ) level. In the WWU network these are Wales North, Wales South and South West. This means that the same drivers for demand growth / decline are assumed to be consistent across a large geographic level and no account of more local initiatives by e.g. Local Authorities and community groups is taken. This approach has been appropriate in previous years when drivers for growth were based on UK factors such as the economy and fuel prices. However, this is becoming less appropriate in recent years with the growth of decentralised solutions and more localised approaches. This project will take account of local drivers in producing forecasts at a sub-LDZ level. We anticipate that this should improve the accuracy of forecasts and provide better data on which to build investment plans. These forecasts will then be appropriate to consider alongside forecasts for the DNO in our region which will enable us to provide whole system forecasts in the future.

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

Undertaking forecasting in this way is a new way of working compared to our current methods, it is unknown if forecasting in this way will deliver the benefits we expect, which carries a risk to Wales & West Utilities.

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

There is a risk that it is not possible to secure appropriate data e.g. from Local Authority plans at the level of detail we need to add the level of improvements we require from this process.

This project has been approved by a senior member of staff

Yes