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

Feb 2019

Project Reference Number

NIA_WWU_057

Project Registration

Project Title

Future Of Gas Transportation Charging

Project Reference Number

NIA_WWU_057

Project Licensee(s)

Wales & West Utilities

Project Start

February 2019

Project Duration

0 years and 3 months

Nominated Project Contact(s)

Smitha Coughlan

Project Budget

£22,000.00

Summary

This project will produce a scoping study, which will be used to understand how charges for gas transportation distribution charging may need to evolve to accommodate increasing levels of distributed generation. The outputs of this first time research will inform future opportunities for the gas network.

Nominated Contact Email Address(es)

innovation@wwutilities.co.uk

Problem Being Solved

Usage of the gas network is changing, with increased amounts of smaller, distributed production sources (predominantly biogas) connecting to the distribution network. These plants typically work most efficiently when they inject on a flat profile, but this has implications in terms of capacity constraints at times when demand is low. In this context, methodologies for gas transportation may need to evolve to remain efficient, to reflect costs imposed on the network and to incentivise the best network use. We are not aware that this problem has been tackled before (at least in GB) and therefore it is currently unclear what charging changes may be required, but there is potential to learn from developments in electricity charging in response to the growth of distributed renewables and related network impacts.

Method(s)

WWU in partnership with KPMG will identify changes to gas transportation charging that are required to meet the changing use of the network. Primarily, this will focus on taking learnings from the electricity sector (distribution and transmission) on how charges have evolved to manage increases in renewable generation. This will include:

- Providing a description of subsidies, incentives and environmental taxes applicable to renewable electricity generators

- Providing a description of key aspects of electricity distribution and electricity charging noting key differences between gas and electricity with particular regard to renewable generation.
- Identifying concepts from electricity that could be applied to gas entry together with an outline of how this could work in practice

Initially we are proposing this approach as it is a low cost, desk-based study to provide us valuable information on whether to pursue this further. The lessons learnt from this will be useful for us and other network networks.

Scope

The output of the work will be a set of outline concepts for changes to charging methodologies to meet the challenges of the future, particularly managing the growth of biogas plants.

The final report will include:

- A description of subsidies and incentives available to renewable electricity generators and environmental taxes they face.
- A description of the key features of how the electricity distribution and transmission charging regimes addresses constraints for renewables related to entry to the grid.
- How arrangements used in electricity distribution or transmission could be applied to gas distribution taking into account the differences between electricity and gas.
- Specific proposals that could be applied to charging for gas entry

Objective(s)

An enhanced understanding of how gas transportation charging may need to evolve to accommodate increasing levels of distributed generation.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

We will have gained learning from electricity charging regimes & will understand drivers for change in the gas industry.

Project Partners and External Funding

KPMG. All funding will be via NIA

Potential for New Learning

Learning will be developed around concepts and mechanisms in electricity distribution transmission that could be applied to gas distribution including any potential limits to change in gas.

Scale of Project

This project will be completed at the relevant scale, which is a desktop study.

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

The project will look at charging mechanisims across the UK

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

External Cost: £16,500

Internal Cost: £5,500
Total Cost: £22,000

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)

Research

Please provide a calculation of the expected benefits the Solution

Research project

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

The research from this project could be used across gas networks in the UK

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

Costs would be minimal. The research will be shared with other networks and applicable to all areas of the UK

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

In this phase of the project, learning will be developed around concepts and mechanisms in electricity distribution transmission that could be applied to gas distribution including any potential limits to change in gas. The project will take into account the current commercial arrangements in gas distribution including system constraints. The final project report will be published, which other networks can use to inform future decisions around transportaion charges

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.

No work of this kind has been completed in the UK to date.

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

Demand on the network has changed in recent years with 19 bio-methane plants and 30 flexible generation plants now connected. Biomethane plants work most efficiently when they inject on a flat profile, however WWU is experiencing an increasing number of capacity constraints at times of low demand which means that plants cannot connect or are not able to inject the volume they wish. The project will seek to provide a view of different charging models and how these would work in practice. This has not been tried before as it relates to recent changes to the network.

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

This project did not form part of the RIIO GD1, it requires funding outside of this. The expertise needed to complete this work is not something that could be completed in house by 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

It is yet to be proven if the learnings from the electricity networks will be applicable to the gas charging model, this is a risk to Wales & West Utilities.

This project has been approved by a senior member of staff

☑ Yes