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

Jan 2018

Project Reference Number

SPDEN01

Project Registration

Project Title

FUSION

Project Reference Number

SPDEN01

Project Licensee(s)

SP Energy Networks Distribution

Project Start

January 2018

Project Duration

5 years and 1 month

Nominated Project Contact(s)

SPEN Innovation Team

Project Budget

£7,100,000.00

Summary

The energy market in the UK is evolving radically with `prosumers' increasingly engaged in generation, flexibility and supply of their own energy. All this activity is having a direct impact upon the operation and design of the network. Distribution Network Operators (DNOs) can make use of this flexibility to develop a grid modernisation strategy that takes account of the cultural shift in how energy is generated and consumed; consequently securing the provision of affordable, reliable and safe power within an electrical grid that is dominated by distributed energy resources and multiple fuel technologies.
Project FUSION will allow DNOs to make use the inherent flexibility that is available within a region by implementing a whole system approach across multiple energy vectors (transport, heat, gas electricity). This will be developed within a fixed frame of network parameters and demonstrate how flexibility across each energy vector can be optimised as part of a services market, to mitigate network constraints and provide a valid alternative to conventional network reinforcement and enable an agile market which can accommodate for future uncertainty in regional development.
The project will engage with multiple industry participants and stakeholders to realise the value of their flexibility by implementing an open access commercially structured market place which will allow multiple energy users to offer demand or generation services to the DNO to alleviate network issues in real time and reduce network losses.

Third Party Collaborators

DNV

Origami Energy

Imperial College London

SAC Consulting

Fife Council

University of St Andrews

Nominated Contact Email Address(es)

innovate@spenergynetworks.co.uk

Problem Being Solved

Method(s)

Scope

Objective(s)

Project FUSION will implement the Universal Smart Energy Framework (USEF) across North East Fife as a new open access market place for flexibility. The Framework has been developed as an international standard to deliver a universal market for flexibility and has been successfully trialled in the Netherlands.
However, the user device interface (UDI) and commercial framework have not been proven within the GB market and consumer context. Therefore, the project will develop USEF so that it is fit for purpose within the UK. This includes establishing the interface between USEF and each participant that is active within this flexibility market (network operators, suppliers, aggregators, flexible demand customers) and the commercial arrangements that facilitate a settlement process showing that flexibility products can be delivered reliably as specified and as scheduled.

Prior to the network trial the USEF commercial framework will be developed to take account of the market structures and algorithms within the GB market context. This includes the methodologies and safeguards specific to the GB market and regulatory framework to facilitate effective competition in flexible user price submissions and avoid market abuse; as well as demonstrating the safeguards to ensure that 3rd party procurement of flexibility does not result in unacceptable loading on the distribution network.
Once USEF has been adapted and is fit for use within the UK a network trial will demonstrate how a multi vector approach can provide valuable network flexibility by incentivising customers to provide the network with the flexibility its requires to alleviate network strain and defer expensive reinforcement. The trial will coordinate an array of LCTs across North East Fife in real time in partnership with USEF to show how traditional reinforcement can be avoided by peak shaving electrical demand by making use alternatives supplies of energy. For example, the provision of the gas network to alleviate the peaks in demand caused by the electrification of heat and transport.
Alongside the project, the local distribution network within North East Fife will be equipped with adequate monitoring to enable SPD to identify network issue in real time and request the required flexibility from the USEF market place. This will be a staged approach by identifying priority circuits which include customers and aggregators with the adequate flexibility that can be offered to the DNO.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

n/a

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

n/a

Geographical Area

Revenue Allowed for the RIIO Settlement

Indicative Total NIA Project Expenditure

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)

n/a

Please provide a calculation of the expected benefits the Solution

n/a

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

n/a

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

n/a

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

n/a

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

Please demonstrate how the learning from the project can be successfully disseminated to Network Licensees and other interested parties.

Please describe how many potential constraints or costs caused, or resulting from the imposed IPR arrangements.<

Please justify why the proposed IPR arrangements provide value for money for customers.

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.

n/a

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

n/a

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

n/a

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

n/a

This project has been approved by a senior member of staff

☑ Yes