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

Sep 2019

Project Reference Number

NIA_SHET__0028

Project Registration

Project Title

Phasor Instream Data Processing (IDP)

Project Reference Number

NIA_SHET__0028

Project Licensee(s)

Scottish and Southern Electricity Networks Transmission

Project Start

September 2019

Project Duration

1 year and 4 months

Nominated Project Contact(s)

Colin Mathieson

Project Budget

£68,200.00

Summary

The System Operator Transmission Owner Code (STC) has been amended recently to include, for future requirements, the transfer of elements of Phasor Monitoring Unit (PMU) data directly to the National Grid System Operator. SSEN presently views PMU data on the Secondary Operational Network (2nd OTN) by directly contacting the PMU. SSEN has no facility to actively gather the PMU data, nor is it possible to make elements of PMU information available to a third party.

Nominated Contact Email Address(es)

transmissioninnovation@sse.com

Problem Being Solved

The System Operator Transmission Owner Code (STC) has been amended recently to include, for future requirements, the transfer of elements of Phasor Monitoring Unit (PMU) data directly to the National Grid System Operator. SSEN presently views PMU data on the Secondary Operational Network (2nd OTN) by directly contacting the PMU. SSEN has no facility to actively gather the PMU data, nor is it possible to make elements of PMU information available to a third party.

Method(s)

The VISOR project demonstrated successfully PMU wide area monitoring. Building on the learning from VISOR the project will explore the different system architectures that facilitate the required PMU functionality.

Scope

All Transmission Owners are required to comply with the STC and therefore will need to install infrastructure that meets the requirements associated with managing PMUs data. The starting point is to help identify how to progress a solution, the system architectural options that will achieve the required functionality and enable internal discussion to select a suitable solution.

Objective(s)

Produce a report that outlines the different system architectures options available for managing PMU information.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Documenting different system architectures that facilitate a range of PMU functionality.

Project Partners and External Funding

N/A

Potential for New Learning

The project will provide options as to how PMU data could be managed to meet the STC future requirements. It is possible that the options may provide a different approach to the system architecture that would bring additional functionality and benefits. The information gathered should help Transmission Owners with internal discussion and specifications for the future purchase of infrastructure to manage PMU information.

Scale of Project

This project is designed to capture and share learning on different system architectures suitable for the management of PMU information.

Technology Readiness at Start

TRL1 Basic Principles

Technology Readiness at End

TRL1 Basic Principles

Geographical Area

N/A

Revenue Allowed for the RIIO Settlement

No allowance has been made for exploring the gathering and active management of PMU information.

Indicative Total NIA Project Expenditure

The total expenditure for the project is £68,200
90% (£61,380) is allowable NIA 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

The knowledge gained has the potential to stimulate meaningful discussion for Transmission Owners on how to best manage PMU data.

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

The investigation will directly benefit discussions on how best to provide the PMU information to National Grid System Operator to meet the future SCT requirements.

☑ 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.

Based on published NIC information the VISOR Project proved that wide area monitoring of PMUs was possible. This project will include the system architecture used to facilitate the VISOR wide area monitoring, as well as other options to manage PMU information.

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 aims to look at a wide range of technologies suitable to manage ‘instream data processing’ and identify their associated system architecture. There is hope that solutions will be presented that are not presently used in the Electrical Utility Industry or protocols that are presently within the testing environment.

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

No allowances have been made in the RIIO-T1 settlement for investigations into managing PMU information. To resolve this challenge the standard approach would be to write a functional specification detailing how the PMU data is to be processed, the material

returned would be assessed and product selection made. There is a risk that the functional specification stated limits operational ability and product choice. Undertaking this research will ensure a more detailed functional specification can be prepared that aligns with internal strategies and there is commitment to support the product bought.

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 significant learning to be shared from this investigation as the new requirements within the STC are applicable to all Transmission Owners. Taking the time to explore the options should enable constructive internal discussions as to the approaches that are suitable to manage PMU data.

This project has been approved by a senior member of staff

☑ Yes