

## NIA Project Registration and PEA Document

### Date of Submission

Jun 2021

### Project Reference Number

UKPNEN05

## Project Registration

### Project Title

Constellation

### Project Reference Number

UKPNEN05

### Project Licensee(s)

UK Power Networks

### Project Start

May 2021

### Project Duration

5 years and 5 months

### Nominated Project Contact(s)

Boris.Yazadzhyan@ukpowernetworks.co.uk

### Project Budget

£17,823,923.66

## Summary

Distributed electricity generation is expected to increase significantly to achieve Net Zero. This will have an impact on the stability of network operation. The Project will demonstrate a novel approach to protection and control by introducing local intelligence in DNO substations. This could save GB electricity customers £132m by 2030.

## Third Party Collaborators

ABB Group

General Electric

University of Strathclyde

PNDC

Siemens

Vodafone Limited

### Nominated Contact Email Address(es)

innovation@ukpowernetworks.co.uk

## Problem Being Solved

Along with the significant increase in distributed generation (DG) the Committee on Climate Change recommends DNOs increase the use of smart services (e.g. flexibility) to achieve Net Zero in a "low regrets and low cost" manner. As we increase our reliance on DG and flexibility in the future, we cannot afford to interrupt these services due to communication issues or transient instability events.

Furthermore, we are limited in how quickly and to what extent we deploy smart solutions, as they are typically deployed within dedicated relay hardware.

**Method(s)**

Please see Constellation NIC Full Submission Proforma

**Scope**

Please see Constellation NIC Full Submission Proforma

**Objective(s)**

Please see Constellation NIC Full Submission Proforma

**Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)**

N/A

**Success Criteria**

Please see Constellation NIC Full Submission Proforma

**Project Partners and External Funding**

Please see Constellation NIC Full Submission Proforma

**Potential for New Learning**

Please see Constellation NIC Full Submission Proforma

**Scale of Project**

Please see Constellation NIC Full Submission Proforma

**Technology Readiness at Start**

TRL5 Pilot Scale

**Technology Readiness at End**

TRL8 Active Commissioning

**Geographical Area**

Please see Constellation NIC Full Submission Proforma

**Revenue Allowed for the RIIO Settlement**

Please see Constellation NIC Full Submission Proforma

**Indicative Total NIA Project Expenditure**

N/A

## 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:

Please see Constellation NIC Full Submission Proforma

#### 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)

Please see Constellation NIC Full Submission Proforma

#### Please provide a calculation of the expected benefits the Solution

Please see Constellation NIC Full Submission Proforma

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

Please see Constellation NIC Full Submission Proforma

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

Please see Constellation NIC Full Submission Proforma

### 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

Please see Constellation NIC Full Submission Proforma

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

Please see Constellation NIC Full Submission Proforma

### 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.

Please see Constellation NIC Full Submission Proforma

### If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

Please see Constellation NIC Full Submission Proforma

## Additional Governance And Document Upload

### Please identify why the project is innovative and has not been tried before

Please see Constellation NIC Full Submission Proforma

### Relevant Foreground IPR

Please see Constellation NIC Full Submission Proforma

### Data Access Details

Please see Constellation NIC Full Submission Proforma

### Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

Please see Constellation NIC Full Submission Proforma

### 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