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 2021

Project Reference Number

NGEN05/V1

Project Registration

Project Title

Retrofit Insulated Cross Arms (RICA)

Project Reference Number

NGEN05/V1

Project Licensee(s)

National Grid Electricity Transmission

Project Start

December 2021

Project Duration

4 years and 4 months

Nominated Project Contact(s)

James Deas (RICA Project Manager) /Alexander Yanushkevich (Innovation Manager) - Box.NG.ETInnovation@nationalgrid.com

Project Budget

£9,133,410.00

Summary

By replacing metallic cross arms with insulated cross arms (ICA) the Retrofit ICAs (RICAs) solution through increased clearance to earth will allow licensees to upgrade the voltage rating of existing 275kV towers to operate at 400kV. The solution will allow an increase of the overhead line rating by over 45% with minimal construction activities and much sooner network capacity access when compared to a new built.

This project will provide a pathway for the GB's first full-scale implementation of RICA technology, by mitigating technology risks and accelerating its adoption onto transmission investment schemes. The project will remove the current process, technology, and specification hurdles that have prevented licensees from adopting RICA as business as usual previously.

Nominated Contact Email Address(es)

box.NG.ETInnovation@nationalgrid.com

Problem Being Solved

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Method(s)

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Scope

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Objective(s)

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

Not applicable

Success Criteria

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Project Partners and External Funding

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Potential for New Learning

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Scale of Project

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Technology Readiness at Start

TRL6 Large Scale

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Revenue Allowed for the RIIO Settlement

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Indicative Total NIA Project Expenditure

Not applicable

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:

This project will develop a novel method of uprating 275kV Overhead Lines (OHLs) to 400kV.Thus accelerating the low carbon future by allowing quicker removal of network constraints, resulting in earlier connection of renewable generation. RICA also provides the potential for cost savings and better visual amenity compared with conventional investment options.

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 (NIC) RICA Full Submission Application [NGEN05/V1]

Please provide a calculation of the expected benefits the Solution

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

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

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

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

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

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 (NIC) RICA Full Submission Application [NGEN05/V1]

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 (NIC) RICA Full Submission Application [NGEN05/V1]

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 (NIC) RICA Full Submission Application [NGEN05/V1]

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

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Additional Governance And Document Upload

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

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Relevant Foreground IPR

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

Data Access Details

Not applicable

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

Please see (NIC) RICA Full Submission Application [NGEN05/V1]

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

Not applicable

This project has been approved by a senior member of staff

☑ Yes