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

Dec 2013

Project Reference Number

NIA_NGET0113

Project Registration

Project Title

Control of Debris and Dust from the Treatment of Grade 4 Tower Steelwork (G4T)

Project Reference Number

NIA_NGET0113

Project Licensee(s)

National Grid Electricity Transmission

Project Start

November 2013

Project Duration

1 year and 1 month

Nominated Project Contact(s)

David A Smith

Project Budget

£205,000.00

Summary

A total of approximately 20 towers, scheduled for re-painting, have been identified to be in close proximity to particularly sensitive environments. The re-painting process has had a full risk assessment and the level of risk is acceptable except in very sensitive areas. The three approaches being evaluated have been identified as innovative, practical ways of mitigating against the risk. Following successful demonstration the process can be implemented to towers in sensitive environments.

Nominated Contact Email Address(es)

box.NG.ETInnovation@nationalgrid.com

Problem Being Solved

During the preparation phase of G4T Steelwork, hand-held powered wire brushes (and other similar devices) are used to remove old paintwork and surface rust. This dust and debris has been identified as an issue in certain sensitive environments. This needs to be controlled and contained to mitigate health, safety and environmental risks to which there is no current solution.

Method(s)

Three different potential methods of capturing the dust and debris are to be considered to help mitigate the risks, these three methods are;

Fine debris netting

Hand-held vacuum collection

Industrial vacuum with manifold system

Each will be assessed during this project to help identify the most appropriate, cost effective and successful approach and will be

demonstrated on several unused towers located away from environmentally sensitive areas to ensure a solution has been proven to work.

Scope

A total of approximately 20 towers, scheduled for re-painting, have been identified to be in close proximity to particularly sensitive environments. The re-painting process has had a full risk assessment and the level of risk is acceptable except in very sensitive areas. The three approaches being evaluated have been identified as innovative, practical ways of mitigating against the risk. Following successful demonstration the process can be implemented to towers in sensitive environments.

Objective(s)

The key deliverables of this project will include;

The adaptation of recognised methodologies (debris netting, hand-held vacuum, industrial vacuum with manifold system) for mitigation of the effects of cleaning structural steel work and the demonstration of the effectiveness of these solution for use on National Grid's overhead line towers during outage & non-outage conditions.

The creation of a procedure/manual to support ongoing implementation of the techniques developed.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The success of the project will be based on the following criteria

The identification of an appropriate, cost effective approach to capturing dust and debris during the abrasion process of preparation for re-painting through assessment and demonstration of three potential options.

The development of supporting documentation to assist the approach being implemented within National Grid.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

A small number of towers will be used to fully demonstrate the capture of dust and debris when preparing for re-painting. Once successfully implemented this can be rolled out to all overhead line routes throughout the network and other network licensees when re-painting in environmentally sensitive areas.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

The project will be designed to cater for towers located throughout the network.

Revenue Allowed for the RIIO Settlement

Zero

Indicative Total NIA Project Expenditure

£205,000

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)

If we are unable to complete repainting on tower steelworks the steel will need to be fully replaced as it will rust and become inoperable. This will cost £500,000 for every tower with an initial 100 being identified as being in an environmentally sensitive area.

Please provide a calculation of the expected benefits the Solution

Method Cost - £205K

Base Cost - £50M

Difference - £47.95M

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

This method could be replicated for any tower located in any sensitive environment throughout the UK and can be implemented by all Network Licensees.

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

The cost for implementation will range between £5,000-£15,000 based on the roll-out of the equipment or per tower; this will be dependant on the technique chosen for full demonstration.

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

All outcomes and lessons following the implementation of the project will be disseminated through the National Grid Innovation Strategy website, the ENA website, at the annual NIA conference and in the final year report.

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.

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