

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

Feb 2017

### Project Reference Number

NIA\_SPEN0019

## Project Registration

### Project Title

Operational Assessment of Composite Poles

### Project Reference Number

NIA\_SPEN0019

### Project Licensee(s)

SP Energy Networks Distribution

### Project Start

February 2017

### Project Duration

1 year and 1 month

### Nominated Project Contact(s)

Euan Gilliland Ewan.gilliland@spenergynetworks.co.uk

### Project Budget

£75,000.00

## Summary

### Project stages

The project will have 3 stages:

- Stage 1: Offline assessment of materials and development of safe climbing methods
- Stage 2: Install poles (11kV and LV) on the SPEN Network
- Stage 3: Assessment/Audit of the results

#### **Stage 1: Offline assessment of materials and development of safe climbing methods**

There will be a trial installation at the SPEN training facility where safety and technical standards staff can develop and trial the working and climbing practices before any poles are introduced to the network for stage 2 of this project. This stage will also involve stakeholder engagement with the supplier and their appointed safe working consultancy to ensure "best practice" is being developed and adopted.

Stage 1 may result in the inability to develop a safe working practice and therefore stage 2 and 3 of the project will be cancelled. The business impact would result in either a request for further trials or the abandonment of any plans to use composite poles in SPEN

#### **Stage 2: Install poles (11kV and LV) on the SPEN Network**

The pilot will look to install composite poles in the Borders area of SPD supporting both LV and 11kV conductors. The working practices developed in stage 1 will be used to install and work on the composite poles in the field.

#### **Stage 3: Assessment/Audit of the results**

The final stage of the project will involve a detailed assessment of use of composite poles and recommendations for use. This will

involve the installation team, design and standards and compliance team. This stage will also involve dissemination of the result to UK DNOs

## Nominated Contact Email Address(es)

innovate@spenergynetworks.co.uk

## Problem Being Solved

Distribution Network Operators (DNOs) throughout the UK use the preservative Creosote to protect the wooden poles that are used for overhead line construction at all voltages from LV through to 132kV with over 25,000 new poles erected each year. Creosote is a harmful chemical. If it comes in to contact with the skin it can cause burns and it has carcinogenic properties. The use of Creosote comes under review every 5 years and there is already a ban in certain circumstances. Industry experts expect that the use of Creosote shall be allowed until 2023 but before this ban is enforced DNOs have to begin investigating alternatives and have a plan already in place if the ban goes ahead.

## Method(s)

This project aims to investigate the feasibility of an alternative to wood poles. It will examine the use of composite poles for a network application involving both 11kV and LV applications, ensuring that best practice can be adopted whilst trialling and developing the different innovative working, design and climbing techniques required.

## Scope

### Project stages

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### ***Stage 1: Offline assessment of materials and development of safe climbing methods***

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DNOs

## Objective(s)

1. Establish a safe working practice to allow climbing and work on composite poles
2. Identify any unforeseen issues when working with composite poles with both LV and 11kV conductors
3. Complete a report describing the positives and negatives of using composite poles compared to wood poles based on the feedback from the field trial

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

n/a

## Success Criteria

The project will be considered successful if the outputs from the objectives allow for further investigation and product development.

## Project Partners and External Funding

n/a

## Potential for New Learning

n/a

## Scale of Project

The relatively small project size reflects the lack of exiting data when using composite poles for use in the electricity industry specifically in the UK. Future work may include the wide scale trial and further testing

## Technology Readiness at Start

TRL7 Inactive Commissioning

## Technology Readiness at End

TRL8 Active Commissioning

## Geographical Area

SPEN Training Centre & Edinburgh & Borders District

## Revenue Allowed for the RIIO Settlement

No revenue highlighted in RIIO settlement for composite pole replacement

## Indicative Total NIA Project Expenditure

£75,000

## 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)

It is anticipated that significant benefits could be realised if the solution proves successful, however a full analysis of the potential benefits cannot be assessed until stage 2 has been completed.

When the ban is introduced, the market for the alternatives to creosote based wood poles will be positioned in favor of the suppliers. This is an opportunity to develop the working techniques and carry out the required trial while the market is still very open and in a developmental stage with no significant sense of urgency. This will have a direct saving across the industry should the trial highlight issues that can be resolved in time to introduce composite poles before the ban.

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

It is anticipated that significant benefits could be realised if the solution proves successful, however a full analysis of the potential benefits cannot be assessed until stage 2 has been completed.

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

The method will be replicable across all Network Licensee areas due to the projected UK wide ban on the use of creosote

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

The costs to roll out this solution will be at the discretion of the respective DNOs and their internal policy requirements. However further investigation into the potential benefits this solution could offer UK customers will be established as the project progresses.

### 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 UK networks operators have similar challenges when the ban on creosote is introduced in the next 5 years. This solution represents an opportunity to install a “non-wood” alternative to creosote if required.

The learning from this project will be disseminated to the other UK DNO’s via the already established communications in ENA forums and wood pole / overhead line groups.

### 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