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

Oct 2015

### Project Reference Number

NIA_SSEPD_0018

## Project Registration

### Project Title

Assessment of Remotely Operated Mulching Methods

### Project Reference Number

NIA_SSEPD_0018

### Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

### Project Start

November 2015

### Project Duration

1 year and 1 month

### Nominated Project Contact(s)

SSEN Future Networks Team

### Project Budget

£259,000.00

### Summary

The purpose of this project is to investigate if using remotely operated forestry machinery can significantly reduce the cost and the potential for safety incidents during forestry mulching.

There is a project plan in place to cover the following steps;

A task specific risk assessment will be created by our business representatives and engineering policy teams that will consider all the potential hazards or issues associated with the new machinery.

A new work programme specific to the task will be developed for the duration of the trial based upon the current programme carried out under traditional methods.

A review of the available plant and equipment across all working environments will be undertaken to identify the most appropriate equipment for the field trials. The equipment will then be purchased or hired depending on pricing and availability.

Staff to be involved in the project from an operational perspective will be selected based on their experience of the current method and experience in using heavy machinery. Training will be provided at this stage to ensure that persons in control of the plant will have the correct authorisations required.

A 6 month trial period will be undertaken using the machine and the operatives and their supervisors will provide feedback and continual assessment as to their benefits.

The results from the trial will be used to make a comparison between the current method and the innovative method and assess the viability of the innovative method from a consideration of financial and safety factors.

### Third Party Collaborators

DC Merrett

## Nominated Contact Email Address(es)

fnp.pmo@sse.com

## Problem Being Solved

Within the SHEPD and SEPD Distribution network areas, together referred to as Scottish and Southern Energy Power Distribution (SSEPD) within this registration form, tree cutting is considered to be a high risk activity. We are aiming to reduce the amount of manual chainsaw operation in hazardous areas where slips and trips are more likely. To do this we are trying to increase the amount of mechanised work we do, in particular by the use of forestry mulching machines. Forestry mulching is a land clearing method that uses a single machine to cut, grind, and clear vegetation. This project will potentially reduce the number of minor injuries and reportable safety incidents.

Manoeuverability and the size of traditional mulching machinery pose significant issues when working adjacent to a live network or at smaller sites. In normal circumstances where the proposed machinery will be used we would currently send four staff with a wood chipper where heavier machinery is not accessible.

## Method(s)

This project seeks to investigate the potential improvement of efficiency and safety through the use of remotely operated vehicles to carry out tasks associated with forestry mulching.
The remote controlled forestry mulcher which can tackle banks of a 45 degree angles, not only minimises the risks to operators over the conventional cutting systems, but also aims to reduce the amount of vegetation on embankments on railways and motorways. The machine allows for stump grinding and ease of transportation to inaccessible places to be possible.

## Scope

The purpose of this project is to investigate if using remotely operated forestry machinery can significantly reduce the cost and the potential for safety incidents during forestry mulching.

There is a project plan in place to cover the following steps;.

A task specific risk assessment will be created by our business representatives and engineering policy teams that will consider all the potential hazards or issues associated with the new machinery.

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A 6 month trial period will be undertaken using the machine and the operatives and their supervisors will provide feedback and continual assessment as to their benefits.

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## Objective(s)

- Define risk assessment for the use of plant
- Develop trial work programme
- Evaluate commercially available options based upon the programme
- Procure machine and carry out training
- Commence trial period of 6 months
- Compare methods and determine the viability of the innovative method

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

n/a

## Success Criteria

The project will determine the viability of the use of remotely operated mulching methods

## Project Partners and External Funding

n/a

## Potential for New Learning

n/a

## Scale of Project

It is proposed that two suitable machines will be trialled during the period to allow a comparison between different environments. These will also be trialled in a variety of operational scenarios to ascertain the most effective in each.

## Technology Readiness at Start

TRL7 Inactive Commissioning

## Technology Readiness at End

TRL9 Operations

## Geographical Area

The project will be managed from SSEPD offices in Perth and field work will be carried out across the North of Scotland and South of England.

## Revenue Allowed for the RIIO Settlement

No saving on expenditure during the project can be assumed at this time.

## Indicative Total NIA Project Expenditure

The indicative Total NIA Project Expenditure is £259,000. 90% of which (£233,000) 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)

Subject to a successful trial period SSEPD has estimated that six units may be deployed which could save approximately £2m in costs over the estimated five year lifespan of the assets. There is also the potential to reduce the number of potential safety incidents by 29 over this period (27 minor and 2 reportable injuries) with a value to the business of approximately £45,000.

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

Using current methods, those areas which do not allow for heavy machinery access will require a team of four tree cutters with a wood chipper to attend. The proposed method would reduce this requirement to two men and remotely operated mulcher. The approximate benefits calculated over a 6 month trial period is as follows;

Base Cost: £228,000
Method Cost: £218,000
Non-Network Derived Benefits:
Safety: £990
Method Cost – Non-Network Derived Benefits;
£218,000 - £990 = £217,010
Financial Benefit = Base Cost – Method Cost
Financial Benefit = £228,000-£217,010
Financial Benefit = £10,990

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

The method will be replicable across all Network Licensee areas where there is a requirement to revisit sites for mulching purposes.

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

Each remotely operated mulcher team would cost the DNO in the order of £100,000 for the machine, £500,000 in labour and £100,000 in vehicle hire and servicing over five years. It is at the discretion of each individual DNO as to how many units would be required.

## 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

Following the field trials SSEPD will be able to provide all DNO's a report summarising the benefits of using the method and produce work instructions and risk assessments.

### 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