NIA Project Registration and PEA Document

Date of Submission

Jan 2016

Project Reference Number

NIA_SSEPD_0025

Project Registration

Project Title

Applied Integrated Vegetation Management

Project Reference Number

NIA_SSEPD_0025

Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

Project Start

January 2016

Project Duration

3 years and 7 months

Nominated Project Contact(s)

SSEN NIA Programme Delivery Manager – Joe McNeil

Project Budget

£187,759.00

Summary

The purpose of this project is to investigate if using IVM can reduce the operational expenditure, number of re-visits, exposure to hazardous activities and impact on the environment compared to traditional techniques.

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

- Determine current knowledge about IVM strategies in the USA and elsewhere by reviewing existing literature and other information sources
- Literature review to assess current equipment and methods.
- Decide management objectives and the range of herbicides and equipment to be used.
- Carry out a baseline site and vegetation survey to understand the site specific plant succession applicable at Tongham Railway site.
- Carry out a baseline ecology survey and 'willingness to pay' survey.
- Set up the trial, with different treatment options and control areas at Tongham Railway.
- Monitor the effectiveness of the various methods used at Tongham Railway.
- Monitor the changes in habitats for wildlife.
- Results from the trial will be used to make a comparison between the current method and the innovative method and to assess the viability of the innovative method from a consideration of financial and environmental factors.

Third Party Collaborators

ADAS

RSK

Nominated Contact Email Address(es)

fnp.pmo@sse.com

Problem Being Solved

The primary problem addressed is the one of trees in the vicinity of overhead electricity lines and also ensuring that regulatory standards are met. For example, on the SEPD 11kV distribution network area between 2003 and 2012, trees have been the cause of 890 million customer interruptions and 1.5 million customer hours lost.

In order to reduce this problem and comply with ETR 132, SEPD are selecting the most vulnerable circuits and seeking landowner permissions for resilience clearances i.e. felling or reducing the number of trees within falling distance of the conductors. Once the trees have been felled, the cleared area normally needs to be regularly maintained in order to avoid the area being recolonised by problem tree species. This is usually carried out with machine mulchers to clear all vegetation, but this is costly and is not desirable from either an ecological or landscape point of view. It is also often very difficult to obtain the landowners' permission to do this.

One of the potential solutions to this problem is Integrated Vegetation Management (IVM). This is the practice of promoting desirable, stable, low-growing plant communities that will resist the invasion by tall-growing through the use of appropriate, environmentally sound, and cost effective control methods.

Problem 1 – Although the use of Integrated Vegetation Management (IVM) is widely used in other countries the species, standards and methods are not necessarily applicable to the UK. The project will investigate the most appropriate species, relevant standards and methods that would be applicable to the UK environment.

Problem 2 – IVM may not be suited to all site types, so the project will look to establish the most effective methods depending on site characteristics.

Method(s)

This project seeks to investigate potential improvements of efficiency, safety and environmental impact through the use of IVM. As already stated above, this is the practice of promoting desirable, stable, low-growing plant communities that will resist the invasion by tall-growing through the use of appropriate, environmentally sound, and cost effective control methods.
These methods can include a combination of chemical, biological, cultural, mechanical and/or manual treatments and will possibly remove the requirement of the DNO to revisit site and carry out costly and disruptive mulching.

Scope

The purpose of this project is to investigate if using IVM can reduce the operational expenditure, number of re-visits, exposure to hazardous activities and impact on the environment compared to traditional techniques.

There is a project plan in place to cover the following steps;
- Determine current knowledge about IVM strategies in the USA and elsewhere by reviewing existing literature and other information sources
- Literature review to assess current equipment and methods.
- Decide management objectives and the range of herbicides and equipment to be used.
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Objective(s)

- Determine current knowledge about IVM strategies in the USA and elsewhere by reviewing existing literature and other information sources
- Design IVM strategies based on current knowledge and test them in the field
- Implement IVM strategies on trial site(s)
- Quantify any financial savings of IVM compared to conventional techniques
- Assess the relative value of biodiversity of the habitat arising from the IVM compared to conventional techniques

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The success of the project will be defined by the following outcomes;
- Identification of the extent to which IVM can control trees returning and how effective it is as a tool to maintain regulatory standards around power lines.
- Determine if IVM is a cost effective method in the UK
- Production and dissemination of learning around IVM

Project Partners and External Funding

None

Potential for New Learning

- Identification of tree and shrub species, standards and methods that would be applicable to the UK
- Demonstration of how and where different IVM methods could be deployed for different site characteristics
- Evaluation of the effectiveness of the IVM trials on site
- Assessment of the most effective IVM methods for different site characteristics

Scale of Project

The scale of this project is considered appropriate to produce sufficient data to fulfil the project objectives

Technology Readiness at Start

TRL7 Inactive Commissioning

Technology Readiness at End

TRL9 Operations

Geographical Area

An important part of the project is to identify suitable sites where IVM could be deployed. This will focus on the SEPD network area where applicable.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

The indicative total NIA Project Expenditure is £187,759. 90% (£168,983) of which 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 at Tongham Railway, SEPD estimates that IVM could be applied to around 10% of all tree affected spans which could potentially equate to approximate savings of £1.2m per annum.

Please provide a calculation of the expected benefits the Solution

The below calculations are for the costs of maintenance work at the Tongham Disused Railway site throughout the remainder of RIIO-ED1 after the completion of tree clearance work.

Base Cost: £25,200
Method Cost: £21,000
Financial Benefit = Base Cost – Method Cost
Financial Benefit = £25,200-£21,000
Financial Benefit = £4,200

The project is also expected to produce significantly reduced disruption to protected wildlife species, when compared to the mulching alternative and also provide improved habitats for wildlife, with a more diverse habitat comprising mainly shrubs and creating wildlife corridors. It is proposed that quantifying these environmental benefits will be included within the project.

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 to manage the regrowth using manual or mechanical cutting techniques.

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

Every site where IVM is feasible will potentially require a different IVM strategy. Therefore it is not possible to extrapolate the costs out against the GB network. However, there are suppliers available across GB to carry out the works wherever there are vegetation management issues.

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 DNOs are required to meet their regulatory obligations and line clearances therefore all DNOs could potentially use the solution. The learning generated for these techniques will be applicable to all DNO's who may wish to use it.

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.

The ENA Smarter Networks portal was reviewed and no similar projects were found. There have been previous IFI projects undertaken on vegetation growth and concept of integrated vegetation management but not a practical demonstration and application on how the use of plants could be used to control tree growth and avoid the need for continual tree cutting.

The leading supplier ADAS has also confirmed that there has been no documented use of IVM within the UK.

http://www.smarternetworks.org/Project.aspx?ProjectID=1001

http://www.smarternetworks.org/Project.aspx?ProjectID=598

http://www.smarternetworks.org/Project.aspx?ProjectID=742

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