

Network Innovation Allowance Progress Report

Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form.

Network Licensees must publish the required Project Progress information on the Smarter Networks Portal by 31st July 2014 and each year thereafter. The Network Licensee(s) must publish Project Progress information for each NIA Project that has developed new learning in the preceding relevant year.

Project Progress

Project Title

New Suite of Transmission Structures

Project Reference

NIA_SHET_0010

Project Licensee(s)

Scottish Hydro Electric Transmission

Project Start Date

Dec 2013

Project Duration

16 Months

Nominated Project Contact(s)

David MacLeman

Scope

The intention of this project is to leverage innovations (for example: ICAs and low-sag conductors) to design a new suite of transmission structures to exploit fully their potential.

The scope of the project will include the following:

- Identify the requirements and standards that govern transmission voltage of 275kV;
- Assess new structure design options, including the use of new materials, from a review of what is being built internationally, and other innovations;
- Develop designs for a small number of the structure options that show the most potential;
- Finalise a design that should be taken forward for field trials and tests;
- Scale model prototypes of the new suite of structures;
- Assessment of the safety, health and environmental impact of the new design (with the aim of improving safety, and reducing the environmental impact); and
- Review the economics of the new structures (taking into account, foundations, access requirements, construction time and maintenance).

Note: the term 'Transmission Structure' has been used to indicate the breadth of scope of the project, i.e. the scope is not limited to considering just classic steel lattice towers, and will consider: poles, guide supported structures etc. as appropriate.

Objective(s)

The objective is to design a suite of new 275kV transmission structures, incorporating a range of innovations, that are smaller, cheaper and quicker to build, and easier to maintain. Safety and environmental impacts are also to be actively considered so that benefits from the new design can be maximized.

Success Criteria

Success criteria would be to provide a new developed design of a suite of 275kV transmission structures and produce scaled models of the new design.

At the end of this project, there should be sufficient understanding and confidence to decide whether to deploy the new structure designs as an alternative to the traditional designs. At this point, the decision should be made whether to go for full scale construction and testing.

Performance Compared to the Original Project Aims, Objectives and Success Criteria

Objective: To design a suite of new 275kV transmission structures, incorporating a range of innovations, that are smaller, cheaper and quicker to build, and easier to maintain. Safety and environmental impacts are also to be actively considered so that the benefits from the design can be maximised.

As part of the first stage of work to meet the objective above, the following activities were to be undertaken:

- A review of the literature on the applicable standards and requirements relating to transmission structures.
- A review of current developments in overhead line support technologies including engagement with other GB electricity network operators (including information exchange and technical research visits) to review existing R&D programmes.

The afore-mentioned project activities commenced after appointment of Energyline Ltd as R&D provider in March 2014. Relevant literature has been reviewed and the activity has now been completed. The second activity to review current developments and engage with other network operators is still ongoing. A report detailing the outcome of this stage of the project is due to be completed by August 2014.

The completion of the first stage will be followed by five other stages which will develop designs taking into account the terms of reference in the objective and resulting in scale models.

Required Modifications to the Planned Approach During the Course of the Project

None.

Lessons Learnt for Future Projects

None