Energy Networks Innovation Process

Annual Project Progress Report Document

The voice of the networks

Date of Submission: 18/07/2024

Annual Project Progress Report Document

Notes on Completion: Please refer to the NIA Governance Document to assist in the completion of this form. Please use the default font (Calibri font size 10) in your submission. Please ensure all content is contained within the boundaries of the text areas.

Project Title (*This cannot be changed once registered*)	Project Reference
New Approach to Losses	NIA_SSEN_0068
Funding Licensee(s)	**Project Start Date**
Scottish Hydro Electric Power Distribution	September 2023
Project Duration	**Year**
7 months	£337,500

Nominated Project Contact(s)
Tim Sammon, Innovation Programme Delivery Manager SSEN

1. Scope

The project will investigate the accuracy of the current losses apportionment methodology by using a new approach to calculate and apportion network losses. If the current model is found to not be accurate, then the project will create a new losses apportionment methodology, underpinning engineering models and prepare them to a standard where they can be submitted to Elexon for approval.

It is not envisioned that this project will produce net benefits to customers as a whole, some customers will benefit from a lower apportionment of losses while others will have a higher level. However, it may result in a more equitable process for the apportionment of losses across all network users.

2. Objective(s)

The objectives of the project are to
1. Calculate losses on the SHEPD network using a new approach.
2. Compare the results with those from the newLAF model.
3. If required, construct a new losses apportionment methodology along with supporting engineering model.
4. Gain internal approval for submission to the BSC Panel, for the new methodology (if required).

3. Success Criteria

The project will either demonstrate that the current losses apportionment methodology produces accurate results or, it will produce a new methodology that will gain internal approval for submission to the BSC Panel for the project. If either of these points are achieved, the project will be a success.

4. Performance compared to the original project aims, objectives and success criteria

Details of how the Project is investigating/solving the issue described in the NIA Project Registration Pro-forma.
Details of how the Project is performing/performed relative to its aims, objectives and success criteria.

The project has completed its first two Work Packages (WP).

WP1. Losses apportionment methodology
• Clearly set out the requirements of a losses apportionment methodology and inputs it will need.
• Report on the type, volume and granularity of metering data needed to feed into apportionment methodology, what is available and what is missing, if any.
• Using metering data and engineering models created in WP2, construct an apportionment methodology that fairly distributes networks losses across network users in proportion to their contribution to losses.

WP2. Engineering Models
• Clearly set out the make-up and topography of the network.
• Report on the sources of data that will be used to calculate both fixed and variable losses.
• Use the information from points above to create models of where losses are incurred on the network that can feed into the losses apportionment methodology.

In the Engineering models work package, it has been determined that the engineering models that are currently used are suitable for use going forward and give an accurate indication of powerflows on the network for use in a losses apportionment methodology. A report has been created discussing these and giving examples of approaches that could increase the accuracy of the modelling in further work in this area.

For the losses apportionment methodology, a new approach has been taken. The existing 'newLAF' model was built for a distribution system where predominantly, power entered from the Transmission system and was consumed by demand customers, leading to a very top down approach to losses apportionment. For the new model, both upward and downward powerflows were considered. This allows generation driven losses to be accounted for as well as demand driven losses. It means that the methodology is appliable for networks that have demand dominant Grid Supply Points (GSPs) as in the 'newLAF' model and also, networks that have generation dominant GSPs

The project is now moving into the user testing and refinement stage.

5. Required modifications to the planned approach during the course of the project

The Network Licensee should state any changes to its planned methodology and describe why the planned approach proved to be inappropriate. Please confirm if no changes are required.

No changes to the project methodology have been required.

6. Lessons learnt for future projects

Recommendations on how the learning from the Project could be exploited further. This may include recommendations on what form of trialling will be required to move the Method to the next TRL. The Network Licensee should also state if the Project discovered significant problems with the trialled Methods. The Network Licensee should comment on the likelihood that the Method will be deployed on a large scale in future. The Network Licensee should discuss the effectiveness of any Research, Development or Demonstration undertaken.

Lessons learnt will be reported at project close down.

7. The outcomes of the project

When available, comprehensive details of the Project's outcomes are to be reported. Where quantitative data is available to describe these outcomes it should be included in the report. Wherever possible, the performance improvement attributable to the Project should be described. If the TRL of the Method has changed as a result of the Project this should be reported. The Network Licensee should highlight any opportunities for future Projects to develop learning further

Project outcomes will be reported in the close down report.

8. Data Access & Quality Details

A description of how any network or consumption data (anonymised where necessary) gathered in the course of the Project can be requested by interested parties. This requirement may be met by including a link to the publicly available data sharing policy.

For information how to request data gathered in the course of this project, see Network Innovation Competition (NIC) and Network Innovation Allowance (NIA) Data Sharing Procedure at https://ssen-innovation.co.uk/innovation-strategy/.

9. Foreground IPR

A description of any foreground IPR that have been developed by the project and how this will be owned.

Standard NIA IPR arrangements will be followed regarding the use of the losses apportionment methodology.