Date of Submission

May 2021

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

Low Cost LV Substation Monitoring

Project Reference

NIA_SSEPD_0027

Funding Licensee(s)

Project Start Date

March 2016

Project Duration

2 years and 0 months

Nominated Project Contact(s)

David MacLeman

Scope

To develop and test a representative quantity of low cost substation monitoring devices from a number of different manufacturers. These will be deployed in a selection of secondary substations and their measurements integrated with a central data centre using GPRS communications. This will be in order to allow informed decisions to be made by network planners and other staff with respect to operational decisions, network planning and customer service

Objectives(s)

The aim of this project is to reduce the cost of LV monitoring to make it economically viable to fit LV monitoring devices in large volumes to the secondary substations.
The cost of an existing LV monitoring system using figures obtained from the NTVV project is approximately £3,600 per substation
This project aims to procure the basic communications unit for a target price in the region of £30 to £40.However, the biggest cost associated with the present methodology is the current measurement device e.g. 24 for a six way feeder pillar. Taking both these into account, it is intended that the project will deliver complete systems which can be procured for a figure in the region of £500 with the potential to lower costs if economies of scale can be achieved by purchasing the current measuring devices in sufficiently large quantities.
The data parameters delivered will be similar to those obtained in the New Thames Valley Vision project. We expect a lower level of accuracy but still sufficiently accurate to determine the benefits which low cost monitoring of a large section of LV network can bring in terms of customer service, network planning and operational decisions.

The data will also assist us in reporting asset health, criticality and monetised risk in line with the Common Methodology required by Ofgem.

Demand clusters could be identified from the data together with the potential to identify pre-fault indications allowing early intervention.

Success Criteria

This project will be deemed successful if it can determine the technical and financial viability of low cost substation LV monitoring equipment in comparison with traditional higher cost equipment.

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

• Objective 1-Reduction in Cost of L V Monitoring Units

At present the NIA overall project cost encompasses development, software and manufacturing costs of the units so it is not possible to extract the cost of an individual system.

However the labour element involved in fitting the units has been considerably reduced as has the physical size leading to expectations of a considerably reduced system cost.

• Objective 2-Use of Data

Data has begun to be collected over the past few months and we are at present just commencing to analyse this. Initial indications are that it will readily assist the identification of system ‘hot spots’ and loadings.

• Objective 3- Determine the technical and Financial Viability of Low Cost Sub-station Monitoring.

At this stage in the project these aims appear to have been met. The units are harvesting data and reporting to hosted websites to which we have access.

It is anticipated the resultant cost at which units can be purchased for BAU use will be considerably lower than the existing systems available in the marketplace.

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

• There was work required to update the existing internal company based Work Instructions.
• This proved challenging and resulted in a delay to installations commencing.

Lessons Learnt for Future Projects

• The project is producing data as anticipated and in line with our expectations however with the progress on the installation of smart meters and the availability of half hour data from that source there will be learning to be pursued related to the interaction between the two data sources.

• To date there have been no significant problems with the installation or operation of the units.
• If expectations continue to be met it is likely the innovation will become Business as Usual with a large scale roll out.

The Outcomes of the Project

Data Access

Foreground IPR