System Health Map project - OFGEM justification paper	
Name of Scheme/Programme	System health map
Primary Investment Driver	Asset Health
Scheme reference/ mechanism or category	SPNLT2054 Non-Lead Asset – Protection, Control, Telecoms and Metering
Output references/type	NLRT2SP2054 / Non-Lead
Cost	£ 0.4m
Delivery Year	2026
Reporting Table	C0.7, C2.2a
Outputs included in RIIO T1 Business Plan	No

Issue Date	Issue No	Amendment Details
October 2019	Issue 1	First issue of document
December 2019	Issue 2	Cost updated

Table of contents

1   Introduction

The project intends to deliver a software platform, operating within operational timescales, which will aggregate and display distributed monitoring data from within SPT's transmission system. The output of this will be a single platform which will present the data from all of SPT's transmission assets, comparing the values against predefined limits (such as ER G5/4 for Harmonics). The outcome will be actionable information regarding system status and health. There will also be a defined architecture and methodology for integration of future equipment.

2   Background Information

The idea behind the system health map is to radically change business-as-usual practice for multiple teams within SPT including Transmission Operations, System Analysis and System Planning. This work was identified due to the growing number of units being installed to monitor assets and identify abnormal conditions.

The first phase of the project will be completed during RIIO-T1, by developing a standardised approach for integrating data from a variety of sources. This includes power quality monitors, which record harmonics and voltage flicker/imbalance on the network, and a variety of sensors that indicate asset health, such as dissolved gas analysis, GIS gas density, partial discharge and distributed temperature sensing. The current implementation does not provide any additional detail or analytics beyond bringing these disparate sources together.

3   Optioneering

The following is a summary of the options considered for this project.

	Option	Status	Reason for rejection
1	Cloud-based third-party hosted	Rejected	Rejected on the basis that this would involve additional risks, complexity and interfaces with external data transport and management.
2	SPT network hosted	Proposed	-

4   Detailed analysis

By identifying trends early, assets can be taken offline and repaired prior to failure. Analysis can also allow for enhanced condition based maintenance plans. Collectively this will increase asset lifespan and utilisation. Additionally, given the impacts of the energy system transition on the network, the map can help ensure compliance with license obligations by providing greater visibility of the wider system. Although the information has been available within company-wide systems, it is challenging to use the information in a holistic and meaningful manner to help identify system problems.

The proposal during RIIO-T2 is to move the System Health Map from development to business-as-usual, by hosting the developed system on a central server and training people on its use. The additional analytical functionality – previously not possible due to the amount of time required to examine and evaluate the data – will then be used to inform future investment needs, and identify areas of concern regarding power quality or asset health. Both of these factors will reduce unplanned outages.

5 Conclusion

System monitoring performs an increasingly important function for network and asset condition analysis. By increasing data analytic capability regarding power quality and condition monitoring data, it will be possible to better monitor asset and system health.

- Costs: £0.4m
- Timing of investment: RIIO-T2 period
- Declared outputs: N/A

6 Future Pathways – Net Zero

We have reviewed this project against the criteria set out within the business plan guidance and have assessed that it does not prevent achievement of our Net Zero plans or lead to stranded assets.

7 Outputs included in RIIO T1 Plans

N/A.