CABLE SYSTEM PORTFOLIO OVERVIEW	
Name of Scheme/Programme	Cable System Portfolio Overview
Primary Investment Driver	Asset Health
Scheme reference/ mechanism or category	N/A
Output references/type	N/A
Cost	N/A
Delivery Year	N/A
Reporting Table	N/A
Outputs included in RIIO T1 Business Plan	N/A

Issue Date	Issue No	Amendment Details
October 2019	Issue 1	First issue of document
December 2019	Issue 2	Updated to reflect final business plan

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1. INTRODUCTION

This paper provides an overview of the cable assets and their health issues while defining the strategy on how they are prioritised for intervention.

The oldest sections of SPT's cable network are aged between 70 years for the early 132kV routes and 60 years for the early 275kV and 400kV routes, with many routes operated to a different load demand and located in different environments.

A method has been defined for detailed condition assessment, based upon present observed condition, known failure mechanisms, technical asset lives for the various cable system components and their key deterioration patterns, criticality of circuits in terms of faults consequences, strategic importance, environmental aspects and innovation.

Cable system refurbishment and replacement strategy is also based upon the NOMS asset risk methodology as implemented with the SPEN CBRM tool.

2. OVERVIEW OF ASSETS AND HEALTH ISSUES

Cable systems were built largely before mid-1960s utilising oil –filled cables and gas-insulated (now replaced) cable systems.

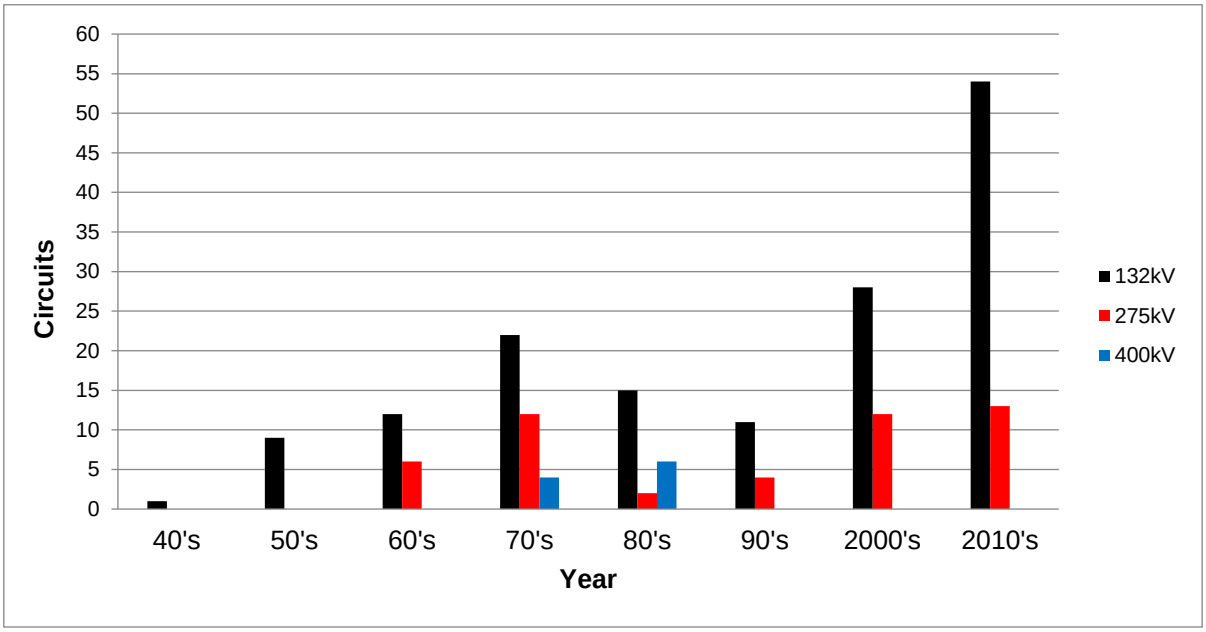

Figure 1: Cable system construction period.

Current strategy for Fluid Filled cable systems is based on the following:

- **Oil-Filled Cable System Replacement:** based on the cable condition and its effect on the environment due to leakage and location (to be evaluated from the Consequence of Failure values from CBRM).
- **Oil-Filled Cable System Refurbishment:** approach to reduce the number and severity of oil leaks and improve safety with improvements to sheath bonding and earthing systems.
- **XLPE Cable Systems:** internal failure rates of accessories on XLPE cables are of higher concern. Lack of quality control during accessories manufacturing and jointing operations is the most likely cause of this type of failure.

3. RIIO-T2 INVESTMENT PLAN OVERVIEW

The proposed refurbishments in the business plan will maximise the life of the cable systems and the programme is supported by CBA. There were no major refurbishments required in RIIO-T1. It has been identified through detailed condition surveys that three routes require to be refurbished during RIIO-T2.

RIIO-T2 Cable Major Refurbishment *(5 years)*		
Asset	**Volume (cct. Km)**	**Cost (£m)**
132kV Cable	14.20	11.90
275kV Cable	9	
400kV Cable	0	
TOTALS/YEAR	23.20	2.38

Table 2: RIIO-T2 plan.

A total of 23.20 circuit km represents the 4% of the total length of cables at 132kV and above installed in the Network.

The replacement of the Currie-Gorgie and Gorgie-Telford Road cable routes is also proposed. The Gorgie – Telford Road section (please see EJP_SPT_SPNLT20124) is in progress and is forecast to complete in RIIO-T2. The Currie – Gorgie section (please see EJP_SPT_SPNLT20124) is proposed for RIIO-T2. Their total length of 18.4km represents 3% of the total cable length at 132kV and above.

Figure 2, where the size of the circle represents the asset count at each point, demonstrates how the proposed investments address the assets condition and risk. It is clear from this chart that the interventions are justified by the condition of the assets and the interventions have been prioritised by risk.

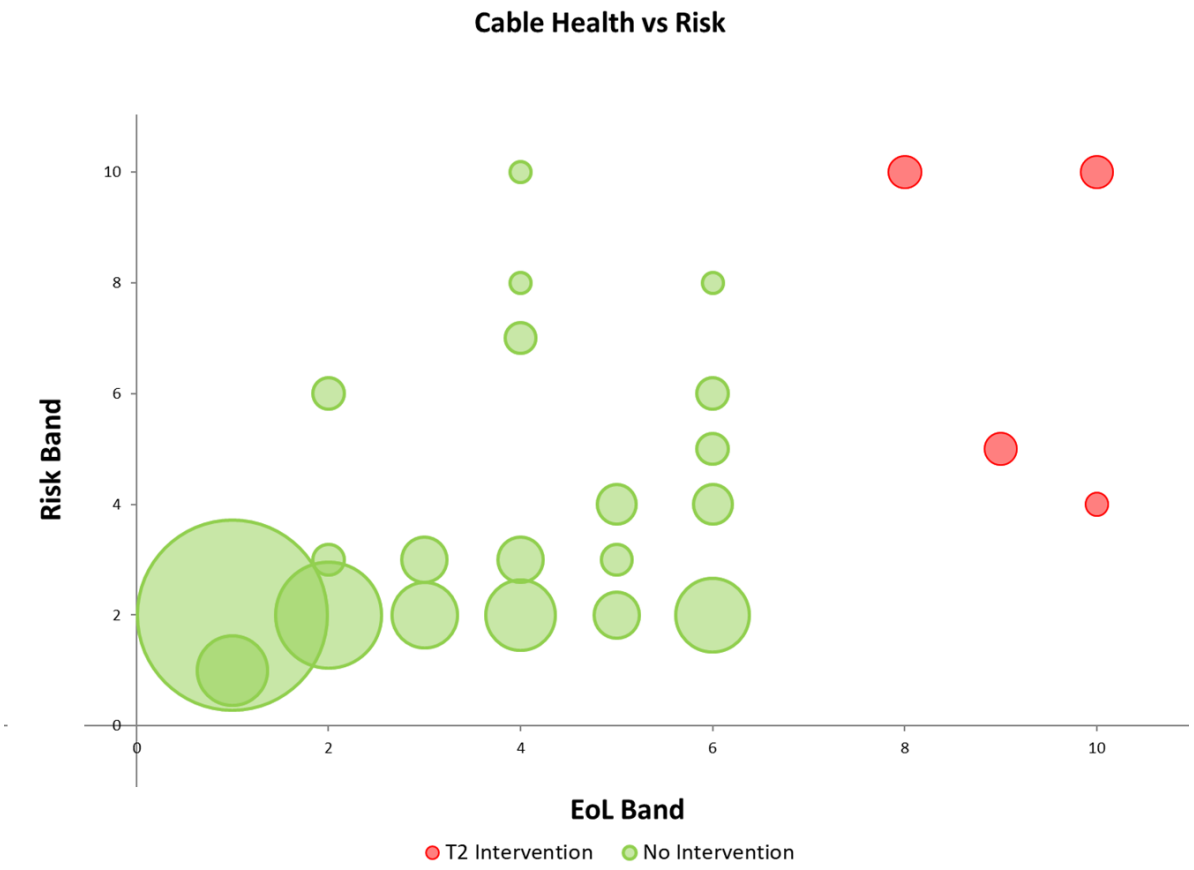

Figure 2: Cable Overview Investment Strategy to 2031 in SPT Transmission Network