Energy Innovation Basecamp 2025
Problem Statement EIP143

Understanding the early signs of non-XLPE cables and their accessories obsolescence

The following problem statement has been developed by the innovation teams within the UK's Gas and Electricity Networks for the 2025 Energy Innovation Basecamp.

Theme: Maximising Existing Use of Infrastructure

Network Areas: Electricity Transmission, Electricity Distribution

What is the problem?

Almost 70% of NGET's cable assets are non-XLPE cables. These cables were installed between the 1970s and 1990s, and they are expected to reach the end of their life within the next 20 to 40 years. The plan is to eventually replace all these non-XLPE cables with XLPE cables. There are a few risks that NGET might face in the meantime.

One of the risks is related to the availability of experienced workforces. As the younger generation may not be interested in becoming experts in a technology that is becoming obsolete, there is a concern about having enough skilled personnel to maintain and operate the non-XLPE cables until they are replaced.

Another problem is the uncertainty around the sustainability of the supply chain for these old technologies. With the emergence of new XLPE cables that offer higher quality and lower production costs, there is a higher demand for XLPE cables. This may lead non-XLPE manufacturers to cease production of their older cable technologies and shift their production line to XLPE cables. As a result, the availability and reliability of a solid supply chain for non-XLPE cables is unknown for NGET.

Even if there is any plan to face cables obsolescence crisis, the optimum timing of its execution to minimise the cost and risk to the grid is unknown.

What are we looking for?

NGET is looking for a solution to identify the early signs of cables and their accessories obsolescence at their early stage so it can proactively develop a plan to determine an appropriate timeline to mitigate the potential challenges. The objective is to stay ahead of the curve and ensure that necessary measures are taken in a timely manner to address the obsolescence of cables and their associated components effectively.

This project is expected to start at TRL3 and is increased to TRL6+.

What are the constraints?

To ensure the reliability and accuracy of any proposed method for detecting early signs of obsolescence, it is important to include a verification procedure to any proposal. This verification procedure serves as a critical step to validate the effectiveness and robustness of the detection method.

Who are the key players?

The key stakeholders of this project are cable asset management and procurement teams in TSOs and DSOs.

It is expected that a multidisciplinary team of experienced cable engineers, supply chain specialist, data scientist, market analyst and strategist are required to address this problem.

Does this problem statement build on existing or anticipated infrastructure, policy decisions, or previous innovation projects?

This is a novel problem, and no work has been previously done in this field.

What else do you need to know?

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Innovator submissions to this problem statement will be open here during March and April, but we encourage you to submit your response as early as possible, as networks will be able to review submissions as soon as they come in.

You can also use the virtual Q&A on the Smarter Networks Portal to ask for more information about this problem statement. Questions may be answered online or at the ENA Problem Statement Launch in March 2024. More information on last year's Basecamp programme can be found here.