

**Electricity
Transmission**

EIP143 Understanding the early signs of non-XLPE cables and their accessories obsolescence

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ENA Basecamp

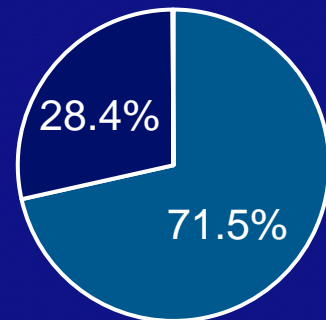


Who we are and what we do

National Grid Electricity Transmission (NGET) owns and maintains the high-voltage electricity transmission network in England and Wales. Every time a phone is plugged in, or a switch is turned on, we've played a part, connecting you to the electricity you need.

We take electricity generated across England and Wales, including from windfarms and nuclear power stations, and transport it through our network, consisting of more than 7000 kilometres of overhead line, 2800 kilometres of underground cable and 350 substations, on to the distribution system, so it reaches homes and businesses.

We're investing in the network, connecting more and more low-carbon electricity – it's a crucial role and pivotal in turning the UK's net zero ambitions into reality.



Oil filled XLPE MIND



7000km
of overhead lines



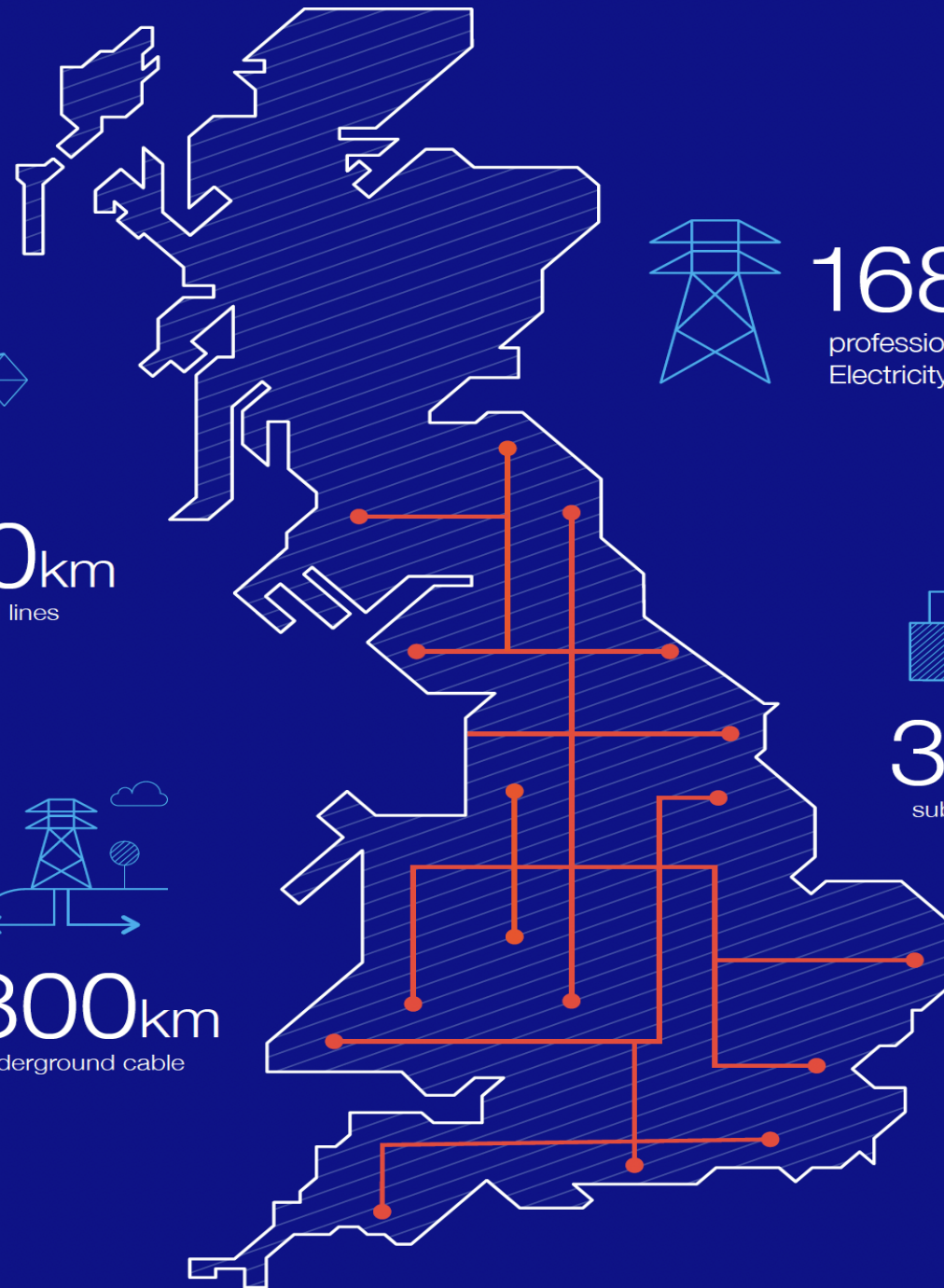
2800km
of underground cable



1680
professionals working for
Electricity Transmission



350
substations



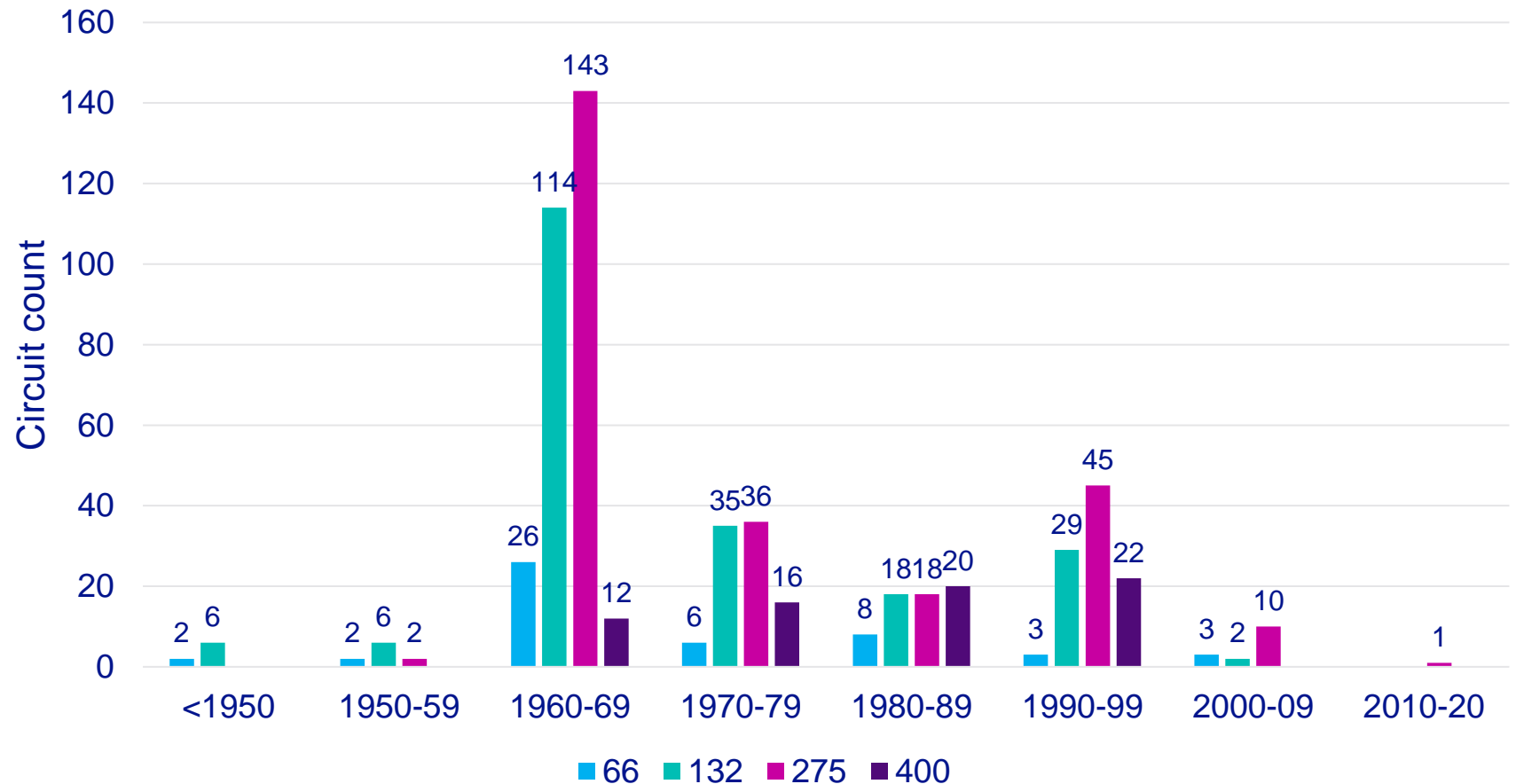
Non-XLPE cables lifespan

Majority of non-XLPE cables were installed between 1960-2000 and are expected to reach their end of life in 20 to 40 years.

All new installations are XLPE, but NGET keeps non-XLPE spare parts for grid maintenance.

NGET is planning to replace these cables with XLPE cables over the next 40 year.

Total Number of In-service Circuits
Oil-Filled Cables by Year Commissioned and Voltage (kV)



What are the problems?

Workforce Challenges:

Risk of insufficient experienced workforce due to younger generation's lack of interest in obsolete technology, raising concerns about maintaining and operating non-XLPE cables until replacement.

Supply Chain Uncertainty:

Uncertainty in the sustainability of the supply chain for non-XLPE cables and their accessories due to rising demand for XLPE cables, potentially leading manufacturers to discontinue older technologies and shift production, affecting availability and reliability for NGET.

Cost & Risk challenges:

The optimal timing for executing plans to address cable obsolescence is unknown, which complicates efforts to minimise costs and risks to the grid.

What are we looking for?

A Viable Solution:

A systematic approach for identifying early signs of obsolescence in non-XLPE cables and their accessories to enable timely intervention.

An Implementation Plan:

Proposing a timely mitigation plan to address potential challenges before they escalate, ensuring continuous operation and reliability.

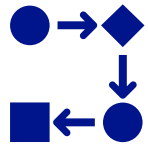
A Cross-Functional Team:

We would ideally need a multidisciplinary team of **cable experts** and asset management professionals for technical support, **economists** to understand the market trends and **strategists** to develop a long-term plan for cable replacement and upgrade to avoid the challenges mentioned earlier.

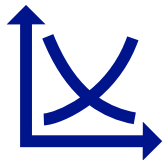
The benefits of this project



To guarantee that UK TOs will have enough experts to support maintaining oil-filled cables while they are in-service.



To guarantee that UK TOs will maintain their capability to procure oil-filled cables and their accessories while they are in-service.



Improving cable replacement strategies, ensuring the grid reliability while managing costs effectively and improving network resilience.

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Q&A

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