

EIP019

Can we minimise cable-fault supply interruptions?

Problem Statement Details

The SPM Network design historically involved a unit protected system at 11 kV (X-Type). However, due to the ongoing complexities and costs associated with the X-Type network, many circuits have been converted into the traditional Y-type arrangement under modernisation. The Converted Network is often still run interconnected between Primary Substations, and any LV network interconnection would remain. This can be problematic – during the event of an HV fault, traditional fault finding and restoration techniques *cannot* be utilised due to the risk back feeding an HV fault *via* the LV network. In this situation, alternative techniques for fault restoration are required, which can be prolonged due to the complexity of the interconnection.

We are looking for methods to solve this complexity by aiding fault location/restoration, and ways to segregate the meshed LV network during a HV fault.

Key Stakeholders

DNO's, Fault Engineers, Customers

Target Market

Interconnected Network Operators, DNOs

Enablers and Constraints

Enablers:

New Secondary RTU with enhanced IO and Modern Telecoms infrastructure being rolled out.

Constraints:

Limited LV Smart Devices to isolate interconnection, fault-finding techniques that don't require a VICTOR.

Scalability and Target Implementation Date

Following successful trial of any solutions a wider roll out will be considered.

Any learning or developments will be shared with other DNOs to allow for adoption.

Innovation Strategy Target Areas

Innovation Theme	Target Area	Primary or Secondary
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Data and Digitalisation	<p>The shift to data-driven, digitally-enabled networks is critical as we move towards Net Zero.</p> <p>We need your help to drive standardisation, interoperability, security and digital skills whilst accelerating our transformation to data-driven networks by the mid 2030s.</p>	Secondary
Flexibility and Market Evolution	<p>Energy networks must quickly and efficiently respond to the rapidly evolving needs of the energy system transition. We need your support to eliminate barriers to new market entrants, deploy novel commercial and network management solutions whilst ensuring fair participation and eliminating regulatory barriers within the RIIO-2 price control periods.</p>	Secondary
Net zero and the energy system transition	<p>In order to meet the UK net zero targets of 2050 we must start converting our networks to deliver low carbon fuels today. We want to work with you to develop the role of our gas networks into the future by investigating, trialling, implementing and delivering safe, low carbon alternatives to natural gas such as Hydrogen.</p> <p>Net Zero requires connection of more low and zero carbon sources of energy generation, storage and demand to both the transmission and distribution networks. We need your innovative methods for effective network management and accessing flexibility to improve visibility, forecasting and modelling of low carbon technologies.</p>	Primary
Optimised assets and practices	<p>Innovation has a key role to play in ensuring our networks continue to remain reliable, safe, secure and resilient to our changing climate. We are constantly looking to improve and welcome support to identify methods to prevent interruptions, ensure resilience, reduce climate impact and future-proof our networks.</p>	Secondary
Supporting Consumers in Vulnerable Situations	<p>Equality and fairness are the foundations of a just transition to Net Zero. We hope you can provide insight into the transient and situational nature of vulnerability and how we can overcome the impact the energy system has on consumers, building strong relationships for the future.</p>	Not applicable
Whole Energy System Transition	<p>The energy system must consider the full range of opportunities, risks and interdependencies that exist across the energy networks to integrate and optimise them in a way that best serves the consumer. We are looking for ways to improve visibility of the networks and transitional options, co-ordinate approaches and collaborate across the UK.</p>	Primary