

## EIP048

# Can we prevent outages from new connections?

### Problem Statement Details

SSEN Transmission has ambitious targets set over the coming years with renewable energy in the North of Scotland set to grow exponentially. By 2050 we anticipate that approximately 50 GW of renewable energy will be connected to the network - from a variety of on-shore and off-shore sources. This is a significant shift from the 8 GW currently connected, so over the coming years, we will undoubtedly face new challenges that will need to be overcome to deliver this network of the future.

As we connect more energy to our network, the process can cause significant disruption to the network and the surrounding environment. One key disruption is the need to apply network outages to enable the required reinforcements. Outages are inherently complex, and not only do they impact our customers, but the planning process takes significant time and alignment; it can add significant time to the overall process.

We need to identify new methods to minimise this disruption, and so we are interested to investigate opportunities that can:

1. Minimise overall outage times, and/or;
2. Prevent the need for an outage.

The most desirable outcome would be to *prevent the need for an outage*, but we feel it is important that solutions can also be identified to *minimise the disruption*. In considering the prevention of any outage, we are keen to understand workarounds. This would be a solution that allows for part or all of the reinforcement works to continue without the need for circuit isolation.

### Key Stakeholders

Network operators, renewable generators, local communities, energy consumers.

### Target Market

Albeit this challenge is categorised against Optimised Assets and Practices, the intended solution(s) have the potential to have applications across the Whole Energy system (both gas and electricity).

### Enablers and Constraints

There have been various innovation projects in the past that have considered modular or temporary mobile solutions. Initial consideration should be made around the successes and failures of the approaches used in these examples.

## Scalability and Target Implementation Date

As significant works are already underway across much of the SSEN Transmission network, new solutions and methods are needed right away to prevent further delays on future projects. As a result, there is significant interest in identifying new innovative solutions that have the potential to be deployed *in the RIIO-T2 period*. This essentially drives the requirement for higher TRL solutions; however, we will not limit ourselves to opportunities that may require further research with a protracted implementation time.

## Innovation Strategy Target Areas

Innovation Theme	Target Area	Primary or Secondary
<b>Data and Digitalisation</b>	<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>	Not applicable
<b>Flexibility and Market Evolution</b>	<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 RII0-2 price control periods.</p>	Not applicable
<b>Net zero and the energy system transition</b>	<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>	Secondary
<b>Optimised assets and practices</b>	<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>	Primary
<b>Supporting Consumers in Vulnerable Situations</b>	<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
<b>Whole Energy System Transition</b>	<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>	Not applicable