

EIP049

Can we reduce our construction times?

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.

One of the key challenges is the significant complexity around constructing a network of this scale. Time is one of our biggest factors, and we need to focus our attention on reducing overall construction times across all projects to enable the timely delivery of our plans. This scale of growth has never been experienced before in our network area, so this will inevitably drive the need for new innovative solutions to overcome the various obstacles along the way. We need to discover new methods that can alleviate the pressures of building these infrastructure types our Substations and Overhead Lines (OHL).

Across these infrastructure types, we would like to focus on two main challenge themes:

1. **New construction methods and practices** – this should consider the full programme life cycle, from design to energisation that identifies new methods or approaches to reduce overall programme time.
2. **Supply Chain Efficiencies** – identify new methods and practices that target the key supply chain performance metrics (Time, Cost, Quality) to enable greater efficiencies whilst minimising waste across each metric.

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

The OHL Foundation Uplift NIA project is an example of work underway to identify improvements in OHL foundation designs. The scope of this project is expected to identify design methods that can deliver greater efficiencies and reduce overall time and materials in this construction method.

[OHL Foundation Uplift | ENA Innovation Portal \(energynetworks.org\)](#)

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
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>	Not applicable
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>	Not applicable
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>	Secondary
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>	Primary
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>	Not applicable