Energy Innovation Basecamp 2026
Problem Statement EIP161

How can we effectively visualise the extensive data generated by the transmission network to ensure control room engineers are able to make optimal decisions in a timely manner?

The following problem statement has been developed by the innovation teams within the UK's Gas and Electricity Networks for the 2026 Energy Innovation Basecamp.

Theme: Net Zero Transition Impacts

Network Areas: Electricity Distribution, Electricity Transmission, Electricity System Operator,

What is the problem?

The control room operator must visualise a growing number of power system characteristics as we move towards a decarbonised electricity system, including inertia, system strength and system oscillations, on a more regular basis. In addition to this, new levels of automation, such as Network Topology Optimisation, will stream a significantly increased volume of options to each operator as scenarios become more varied throughout any given day.

Much of this information is currently displayed using traditional methods such as graphs and tables, which can be difficult to fully interpret in operational timescales and require significant experience to bring these data sources together. As the volume of data expands, along with the complexity of operational issues, we need to ensure that control room engineers can identify the critical information to maintain the system integrity.

We would like to understand how we effectively visualise the extensive data generated by the transmission network to ensure control room engineers are able to make optimal decisions in a timely manner?

What are we looking for?

We are looking for research into new design principles that can be used in our control room operator products to best visualise the following:

- Inertia
- Oscillations
- System Strength
- Network Topology Optimisation output

What are the constraints?

None

Who are the key players?

Who are the key stakeholders affected by this problem statement? Who will adopt this solution? Who benefits from the resolution? What sort of innovators are you trying to attract solutions from? Who is the target market for this problem statement?

Direct stakeholders: NESO and other System Operators globally, TOs, DSOs/DNOs.

Indirect stakeholders: Any user of real-time power system products.

We are ideally looking to work with research institutes, universities and companies interested in human machine interface research.

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

This builds on the NIA funded report into Network Topology Optimisation (NIA2_NESO087) which highlights the need to consider enhancements to the operator user interface as a key area in order to achieve automation of NTO.

This also builds on the NIA funded report by Kings College London into visualisation techniques to improve the NESO videowall interface in the Electricity National Control Centre (NIA2_NESO073).

What else do you need to know?

N/A

Innovator submissions to this problem statement will be open on the Smarter Networks Portal from 4th February to the 13th March, 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 on 4th February 2026. More information on last year's Basecamp programme can be found on the Smarter Networks Portal.