

Automated Corridor Routing Process and Toolset

The following problem statement has been developed by the innovation teams within the UK's Gas and Electricity Networks for the 2024 Energy Innovation Basecamp.

Theme: Building Better and Faster

Network Areas: Electricity Transmission, Electricity System Operator

What is the problem?

The Nick Winser Report Recommended (*Page 26: Electricity Networks Commissioner – Companion Report Findings and Recommendations*):

AR1: An automated corridor routing process should be adopted as standard practice. This will allow more corridor routing options to be considered than is possible without automation. A landscape architect would oversee the automated process and use the output to make a final decision on the corridor route. Regulatory and Planning approval processes will need to recognise and accept the use of this approach and supporting tools.

AR2: A route design process that uses the Electricity Transmission Design Principles (ETDP) should be adopted. A new tool should be developed that supports this process by supporting design of the location within the corridor route and selection of the type of asset (e.g., overhead line, tower, cable etc) that should be used. A design engineer would oversee the automated process and use the output to make a final decision on the proposed route design. Regulatory and Planning approval processes will need to recognise and accept the use of this approach and supporting tools.

The identification of corridor routes during the design stage can take time and resource as multiple options need to be investigated and many data sources interpreted to find the most suitable corridor routes. thereby adding time and cost to projects.

A consistent methodology and toolset across networks could save time and increase confidence in the planning process.

The current situation:

- There is no consistent method across networks for route planning
- Planners and stakeholder groups lack confidence in the plan being optimal
- Reworking of plans and routes causes delay in consenting
- Standardised tools allow integration of planning across TO & DNO boundaries.

We also include within these challenge ideas related to data and digitalisation of planning and consenting process. This is a more complicated problem as it includes government and local authorities.

What are we looking for?

We are looking for tool(s) and method(s) that will facilitate:

- (1) An automated corridor routing process
- (2) A route design process that used the ETDP
- (3) Incorporate the latest data science such as AI to assist and speed up route planning
- (4) Data and digitalisation of planning and consenting process.

We anticipate that the initial work packages will:

- Survey networks on current practice
- Undertake a literature review and market survey to establish state-of-art in route finding and route optimisation.

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We anticipate future work packages will:

- Engage with the ETDP when created
- Form a working group/forum to create a Statement-of-Requirements (SOR) for tool(s)
- Develop the solution(s), possibly with a consortium of innovators.

What are the constraints?

The ESO (and FSO, when established) will convene a working group with the Transmission Owners, UK, Scottish and Welsh Governments, Ofgem and Energy Networks Association to progress a set of Electricity Transmission Design Principles (ETDP). Subject to consultation we will reference the new principles in future updates of the National Policy Statements, giving them status in the planning system. Transmission Owners may decide to start using the ETDP, once agreed, as the basis of engagement with communities ahead of full implementation *via* the National Policy Statements.

Who are the key players?

- All Electricity Transmission Networks
 - Systems planners
 - Data analytics team
 - Project engineers
- The ESO/FSO
- Regulatory authority
- Regulatory planning bodies
- Welsh, Scottish and UK government
- Energy Networks Association

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

Reference: [Transmission Acceleration Action Plan: Government response to the Electricity Networks Commissioner's report on accelerating electricity transmission network build \(publishing.service.gov.uk\)](#)

Innovator submissions to this problem statement will be open [here](#) during March and April, 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 in March 2024. More information on last year's Basecamp programme can be found [here](#).