

EIP101

Automated Routing of Infrastructure



Scottish & Southern
Electricity Networks

TRANSMISSION

Problem Statement

- 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.

- *No consistent method across networks for route planning*
- *Planners and stakeholder groups lack confidence in the plan being optimal.*

Opportunity

- An automated corridor routing process
- A route design process that used the ETDP
- Incorporate the latest data science such as AI to assist and speed up route planning

Campaigners fight 'pylon threat' to Highlands

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New subsea cables 'could help ease energy crisis'

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New subsea cables are needed to deliver electricity from offshore wind farms to the National Grid

Power line to be buried to avoid spoiling Cuillin views

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Renewable energy projects worth billions stuck on hold

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Climate



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By Esme Stallard & Justin Rowlett

BBC News Climate and Science

Billions of pounds' worth of green energy projects are on hold because they cannot plug into the UK's electricity system, BBC research shows.

Possible Work Packages

- **WP1: Survey networks on current practice.**
- **WP2: Literature review and market survey to establish state-of-art in route finding and route optimisation (UK and International).**

Subject to results of WP1 and WP2

- WP3: Form a working group/forum to create a Statement-of-Requirements (SOR) for tool(s)
- WP4: Go to the market to select an innovator or consortium of innovators to develop the solution(s)

The Nick Winser Report Recommendations (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..*
- *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.*

Ket Stakeholders

- All 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

- What are other stakeholders doing on this?
- What are the issues surrounding this problem?
- Who should lead this work?
- What are the barriers to a coordinated effort to solve this problem?
- Is 'Automated Route Planning' a realistic goal – or do we need something else?
- What would the Statement of Requirements look like?
- How does it fit with other 'data visualisation projects – for example the SIF project REACT?
 - [REACT | ENA Innovation Portal \(energynetworks.org\)](https://energynetworks.org/innovation/2022/02/10/ena-innovation-portal-react)
 - [UKRI10079052 | ENA Innovation Portal \(energynetworks.org\)](https://energynetworks.org/innovation/2022/02/10/ena-innovation-portal-ukri10079052)

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