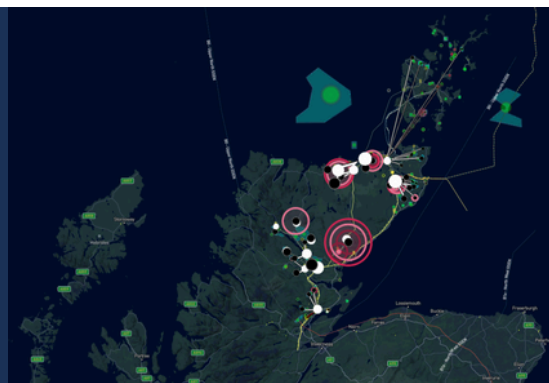


# REACT

## Rapid Evaluation Areal Connection Tool Development Project



### PROJECT PARTNERS



In the current transmission network connection process, energy developers face significant challenges in the pre-application stage due to a lack of comprehensive, up-to-date network headroom data. The process relies on static views of network capacity and connection requests, which prevents a holistic understanding of network availability and potential developments in specific areas. This fragmented approach results in inefficiencies, missed opportunities for optimal capacity utilisation, and extended timescales for assessing connection requests. Likewise, the transmission network needs up-to-date information on the planning status of generation, demand and storage schemes, and factors that may influence their ultimate viability.

### PROJECT GOALS

The REACT project, funded by the Ofgem Strategic Innovation Fund (SIF), aims to address these challenges by developing a sophisticated, geographical planning tool accessible to multiple groups of energy development stakeholders. The primary goals of the project are to:

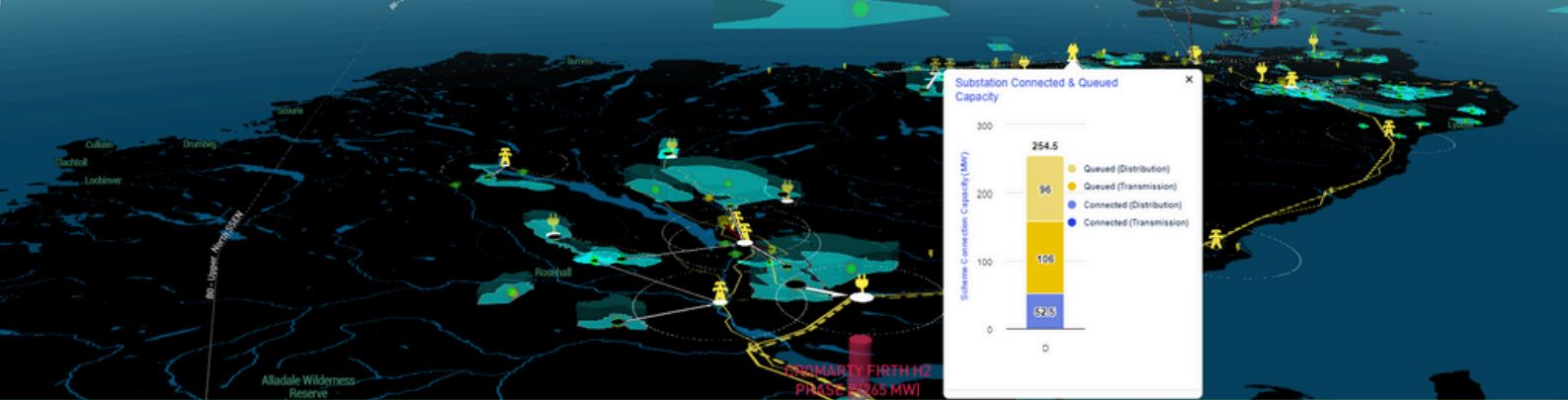
- **Develop a Comprehensive Geographical Planning Tool:** Create a platform that integrates network availability and connection requests into an interactive, web-based visualisation map.
- **Visualise Connection Requests:** Provide a clear view of existing connection requests and their impact on the grid.
- **Optimise Site Locations:** Identify optimal locations for new developments to ensure efficient use of network capacity.
- **Streamline Decision-Making:** Facilitate better decision-making by providing a spatial view of relevant data that influences development success.



Since early 2023, SSEN Transmission has been collaborating with Olsights on the [Strategic Innovation Fund \(SIF\)](#) project, known as [REACT \(Rapid Evaluation Areal Connection Tool\)](#). We have been highly impressed with Olsights' forward-thinking, proactive, and innovative approach. They play a pivotal role in [REACT](#) by developing the user interface for a user-friendly digital transmission-level geographical planning tool. Olsights' extensive experience and network within the Net Zero community has been, and continues to be, crucial to the success of REACT. As a small organisation, Olsights is agile, commercially focused, as well as being a pleasure to work alongside.

**Jonathan Powell**

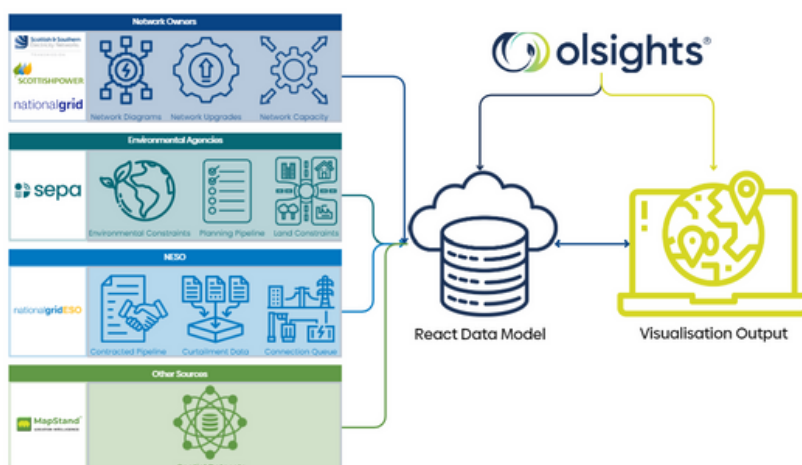
Innovation Development Project Manager



## THE APPROACH

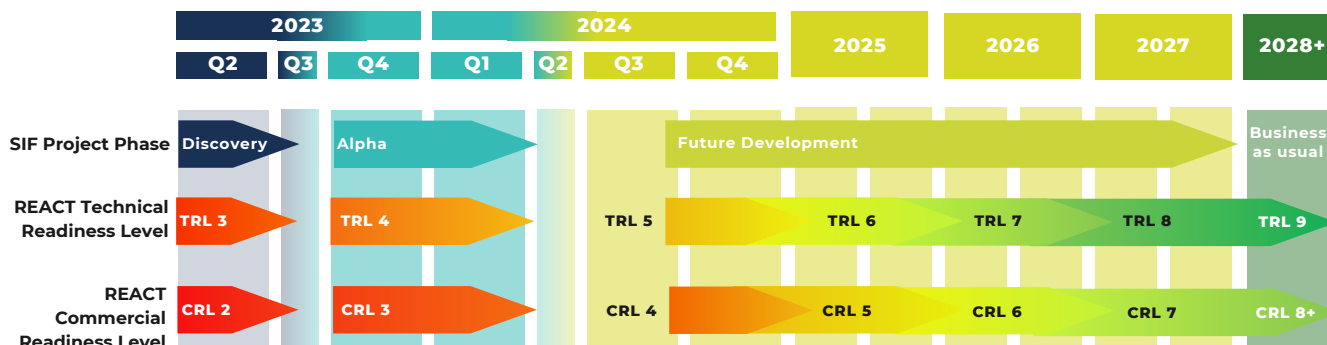
Olsights played a pivotal role in the REACT project by focusing on the development of advanced spatial data visualisation and analytics capabilities. Their approach involved:

- **Integration of Data Sources:** Aggregating diverse datasets related to network availability, connection requests, and spatial mapping.
- **Advanced Analytics:** Applying sophisticated analytical techniques to model network capacity and connection queue over time.
- **User-Centric Design:** Ensuring the tool was intuitive and accessible for developers, network system planners, consenting authorities and other stakeholders.
- **Collaboration:** Working closely with project partners to align on objectives and integrate their respective expertise into the tool.



The project was executed in three phases:

- **Phase 1 (Nov 21 - Feb 22):** Focused on identifying CO2 sources, capture development capacities, and policy alignment.
- **Phase 2 (Apr 22 - May 22):** Identification of potential transport routes from capture locations to exit terminals
- **Phase 3 (Sept 22 - Nov 22):** Investigated hydrogen developments and their integration with CCS and offshore renewables.



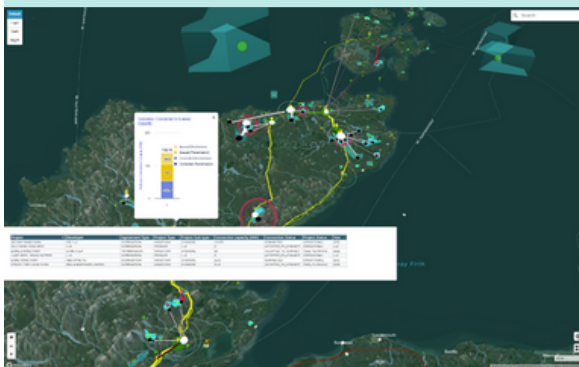
## THE SOLUTION

Olsights contributed to the REACT project by developing the data analytics engine, visualisation framework and user interface for the geographical planning tool. Key aspects of the Alpha stage demo and proposed solution include:

- Automated Spatial Mapping: An interactive map that provides geographic visualisation of network capacity scenarios and latest connection queue.
- Dynamic Data Integration: Continuous updates of data to reflect the latest network conditions and development requests.
- Impact Analysis: Tools to assess the potential impact of new developments on the existing grid infrastructure.
- Optimal Location Identification: Algorithms to suggest the best locations for new projects based on current and predicted network conditions.

## KEY FEATURES

### Power Transmission Assets & Power Flow



- Transmission circuits, with voltage/ capacity/ power flow + headroom labels
- Transmission substations and GSPs, with aggregated connection data and headroom
- Transmission boundaries
- Curtailment (and statistical distribution, derived estimate H2 opportunity) for 2021, 2022, 2023

### Water Availability



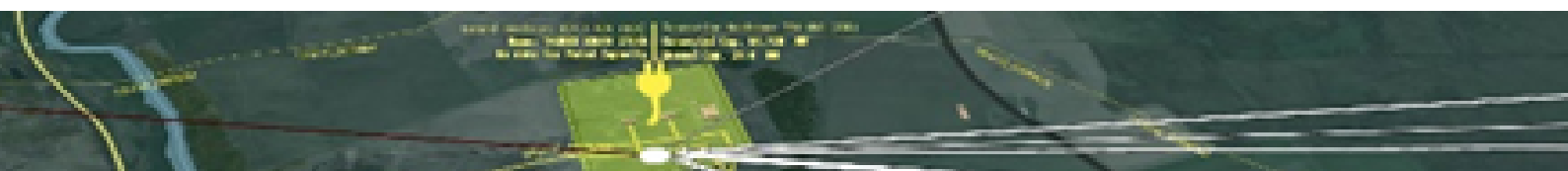
- Measured river flow rates (and statistical distribution)
- River drainage catchment boundaries

### Energy Developments



- Windfarm land polygons
- Hydrogen development locations including derived estimates of power/ water/ land etc requirements
- Other generator and storage schemes (waste, biomass, tidal, hydro, battery etc) locations
- Accepted connection status and connected substation
- Connection flow maps with aggregated connected + queued capacities

Plus detailed information about Hydrogen demand, geography, land use and environmental layers.





## THE IMPACT

The REACT project, with Olsights' contributions, has had a significant impact on the network connection process:

- **Enhanced Efficiency:** Streamlined connection request assessments by providing a comprehensive, spatial view of network data.
- **Reduced Grid Reinforcements:** Improved utilisation of existing infrastructure, minimising the need for additional grid reinforcements.
- **Optimised Network Usage:** Enabled better coordination of new developments, leading to more efficient network capacity use.
- **Support for Decarbonisation:** Facilitated a cost-effective approach to decarbonisation by integrating emerging technologies and optimising network connections.
- **Accelerated Net Zero Transition:** Contributed to speeding up the UK's transition to net zero by reducing delays and improving the efficiency of network connection processes.

## SUMMARY

Olsights' involvement in the REACT project has been instrumental in developing a cutting-edge geographical planning tool that addresses critical challenges in the network connection process. By integrating advanced data analytics and visualisation capabilities, Olsights has helped streamline decision-making, optimise network capacity usage, and support the UK's decarbonisation goals. The collaborative effort among the project partners has resulted in a tool that enhances efficiency, reduces infrastructure impacts, and accelerates the transition to a net zero future.



Olsights is a clean energy data visualisation and application developer creating tools to equip energy decision makers with essential insights to understand and assess the impact of decarbonisation projects.

Contact us for a demo of our flagship product the Olsights Eye or to discuss how we could help you with your next clean energy project.

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Visualising the world of clean energy.

