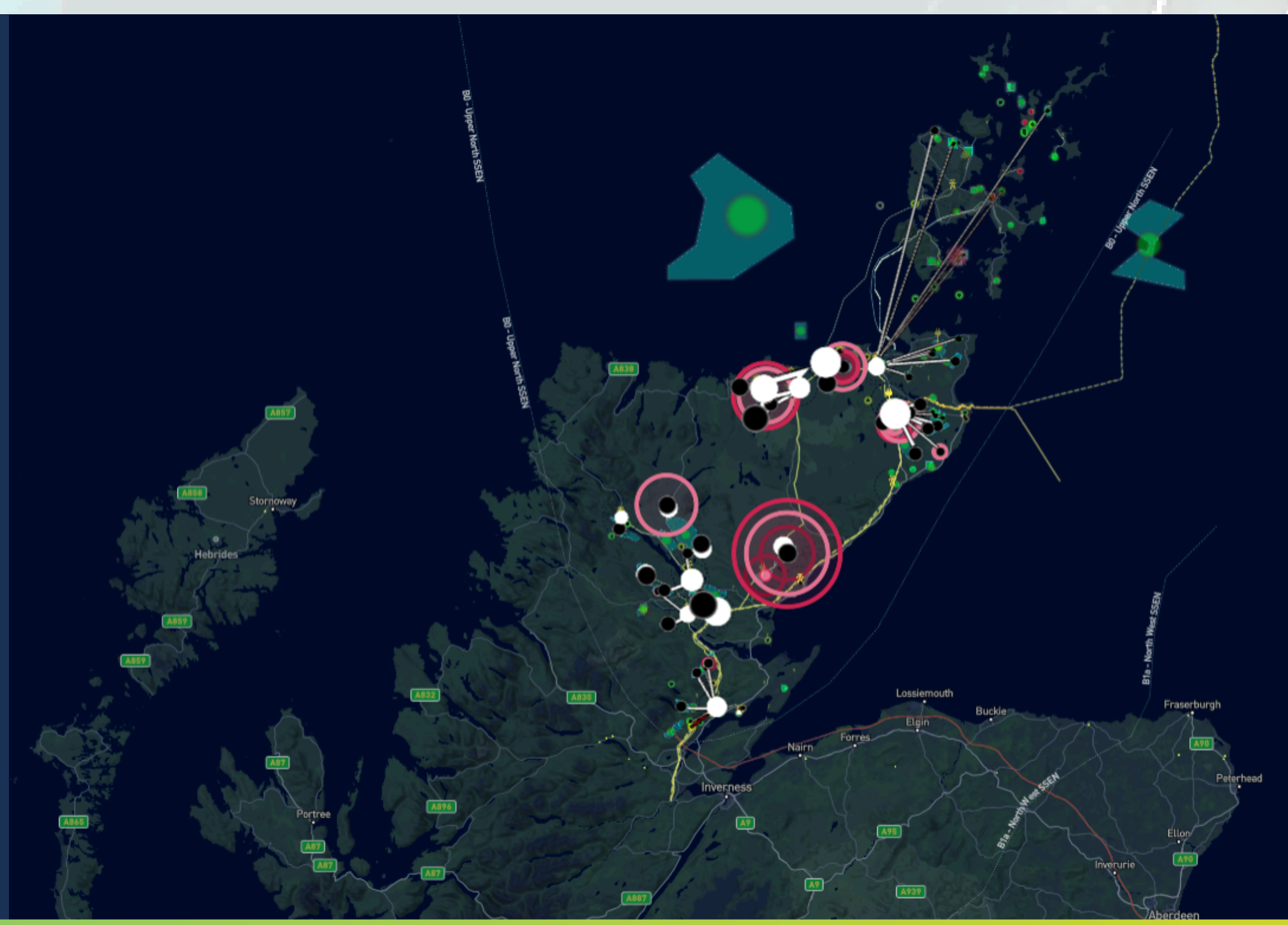# REACT

Rapid Evaluation Areal Connection Tool

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Introduction

The **REACT** project funded by network users and under the Strategic Innovation Fund* tackles inefficiencies in the energy connection process by providing real-time, spatial data on network capacity. Working collaboratively the team from SSEN Transmission, Olsights, MapStand, Icebreaker One, National Grid Electricity Transmission and SGN developed a tool that streamlines decision-making and optimises network usage.

Objective

The goal was to create a user-friendly platform that:
- **Visualises** network availability and requests.
- **Identifies** optimal sites for new projects.
- **Streamlines** decision-making to support net-zero goals.

Method

- **Data Integration**: Aggregates network, spatial, and environmental data.
- **Advanced Analytics**: Models grid capacity and future demands.
- **User-Centric Design**: Simple, intuitive interface for stakeholders.
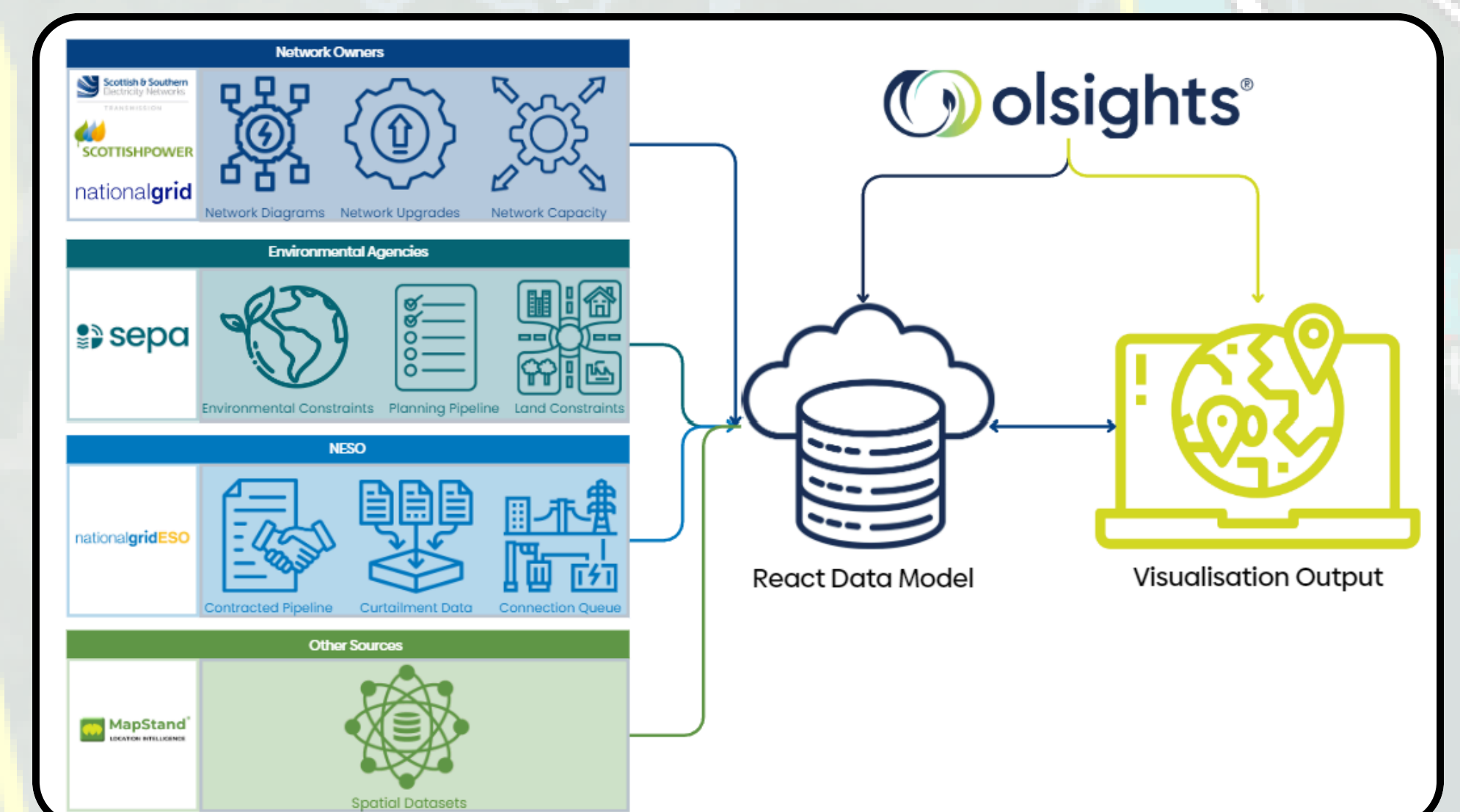

Solution

REACT's platform offers:
- **Interactive Maps**: Real-time network data and capacity.
- **Dynamic Updates**: Continuous data integration.
- **Impact Analysis**: Evaluate the effects of new projects.
- **Optimal Locations**: Suggests best sites for new developments.

Impact

- **Efficiency**: Faster connection request assessments.
- **Grid Optimisation**: Better use of existing infrastructure.
- **Support for Net Zero**: Enables efficient, decarbonised energy solutions.
- **Faster Transition**: Accelerates the shift to a low-carbon future.

Key Features
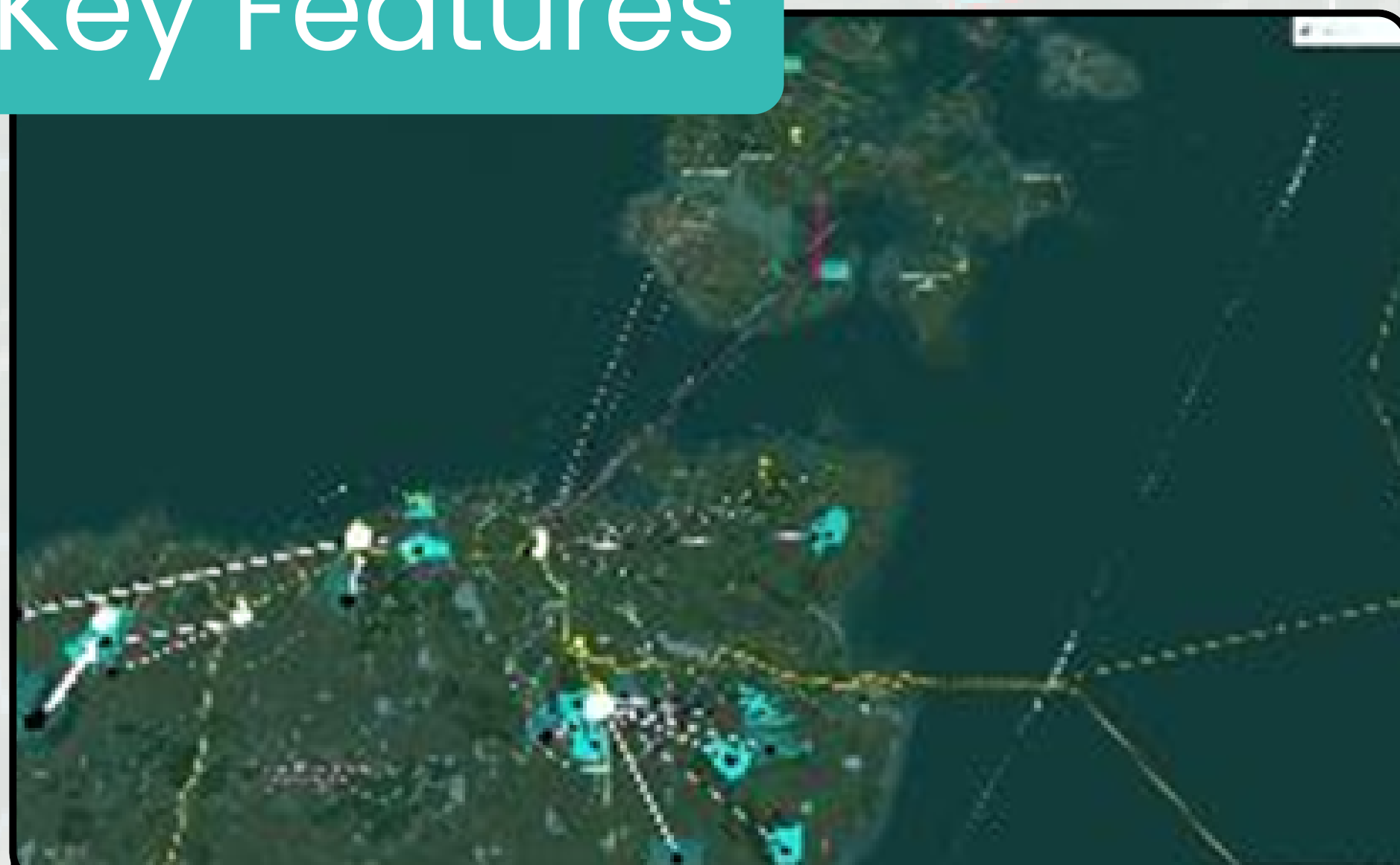
Power Transmission Assets & Power Flow:
- Transmission circuits with voltage, capacity, power flow, and headroom labels.
- Transmission substations and Grid Supply Points with icons and aggregated connection data.
- Transmission boundaries.
- Curtailment data (2021-2023) with H2 opportunity estimates.
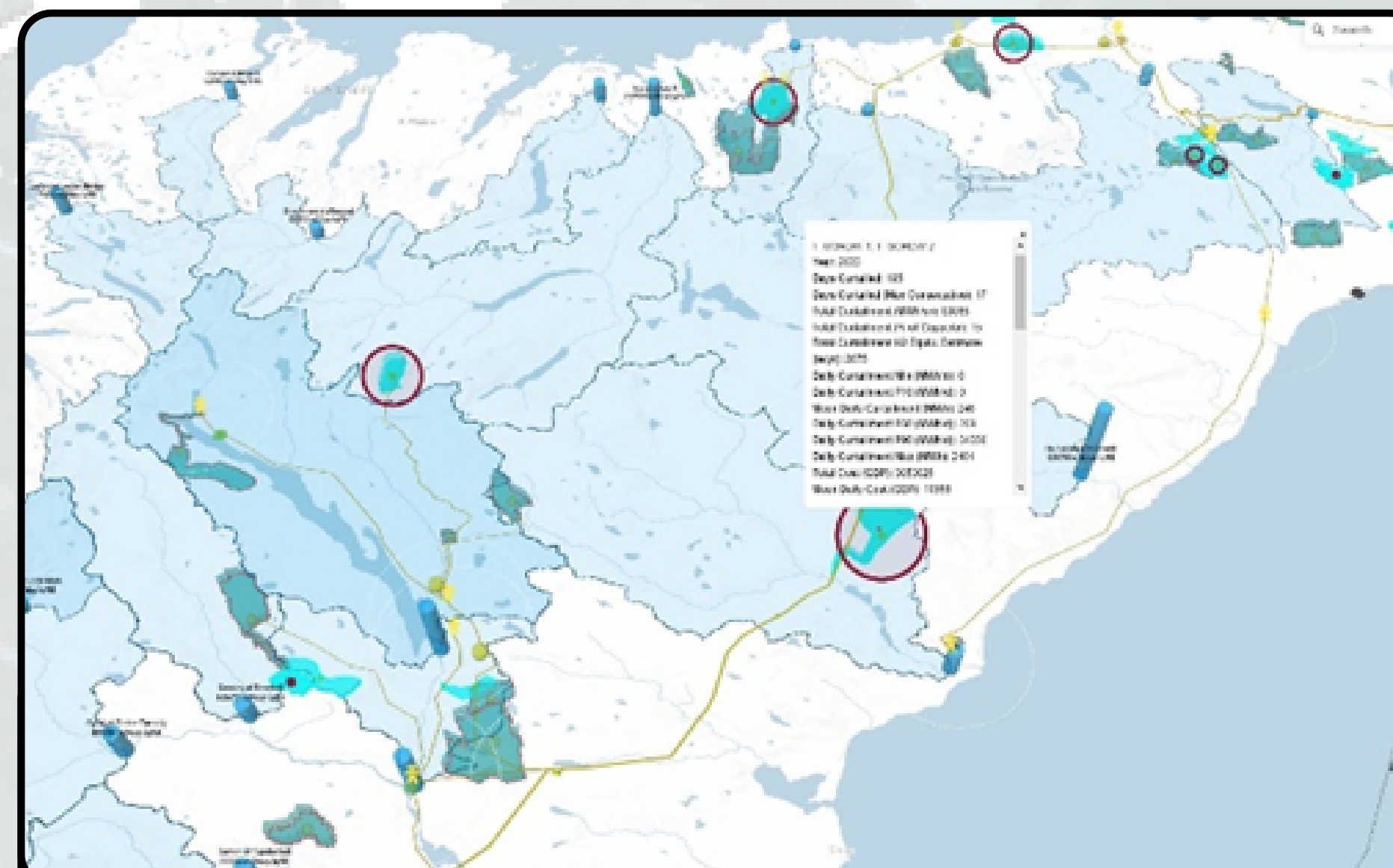
Geography & Land Use:
- Hills, topography, contours, and building heights.
- Aerial imagery, water features, vegetation, and land use.
- Measured river flow rates and drainage catchment boundaries.
- Alternative basemap styles (geographic, light, night).
- Peatland Class 1/2 land use restrictions.

Energy Development & Hydrogen Demand:
- Windfarm, hydrogen development, and other generator/storage scheme locations (e.g., biomass, tidal, hydro, battery) with key attribute labels and pop-ups.
- Point source CO_2 emissions and gas pipeline route estimates for hydrogen transportation.
- Derived estimates of power, water, and land requirements for hydrogen developments.
- Accepted connection status, connected substations, and connection flow maps with aggregated capacities.

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