

REACT

Rapid Evaluation Areal Connection Tool

Energy Innovation Summit

6th November 2025



What will be covered

- Problem & Background
- REACT Features & Functionality
- What's Next

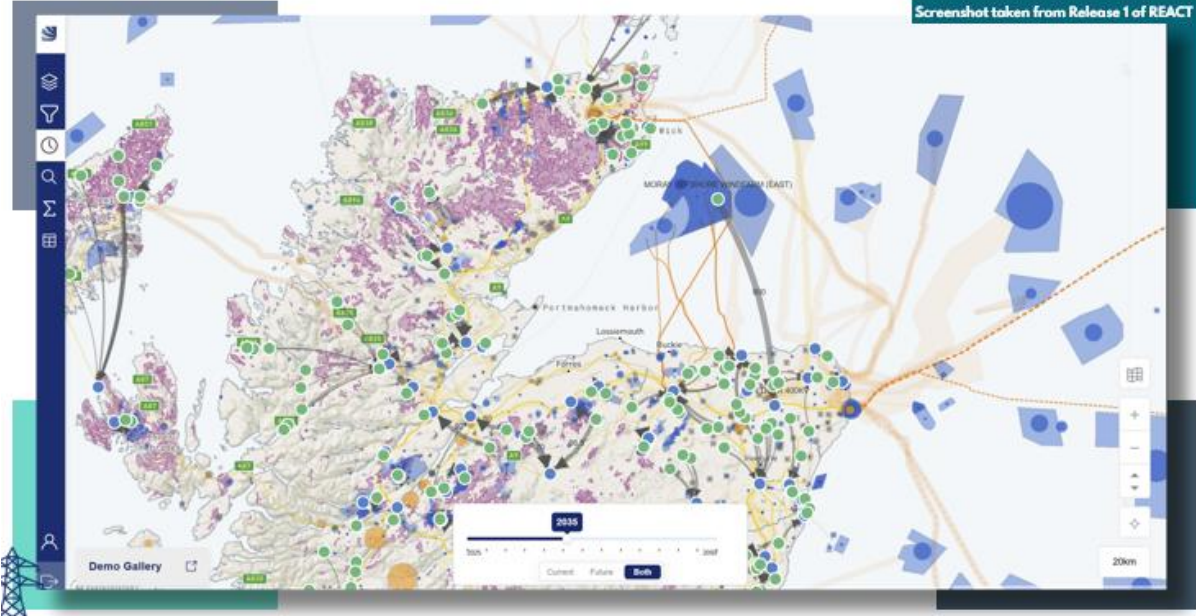
REACT

Smart Planning for a Decarbonised Energy System



Objective

REACT, Rapid Evaluation Areal Connection Tool, aims to revolutionise transmission system planning by tackling delays and uncertainty in the grid connection process, which currently slow down the rollout of Net Zero technologies. By combining advanced spatial planning tools and predictive models, REACT seeks to improve transparency, accelerate decision-making, and help network operators prioritise the most impactful reinforcements. The result: a faster, smarter, more cost-effective delivery of the clean energy infrastructure needed for a sustainable future.



Screenshot taken from Release 1 of REACT

The Digital Solution

REACT is an intelligent, interactive tool that helps planners navigate the energy transition. It offers live, multi-layered mapping and predictive insights aligned with NESO's 2025 reforms, assesses the viability of future projects, and supports proactive decision-making through dynamic scenario planning.

Impact & Future Value

REACT streamlines transmission planning, helping to accelerate grid connections, reduce costs such as curtailment and TNUoS charges, and enable early stakeholder engagement. Designed for scalability, it supports NESO's 2025 reforms and the Strategic Spatial Energy Plan, paving the way for a GB-wide rollout.

Release 1

The current release of REACT provides planners with powerful tools including development pipeline tracking against Clean Power 30 targets, layered spatial data on networks and supply centres, and a daily updated map of all grid connections. It also offers insights into customer behaviour and identifies battery project clusters and renewable co-location opportunities.

Release 2

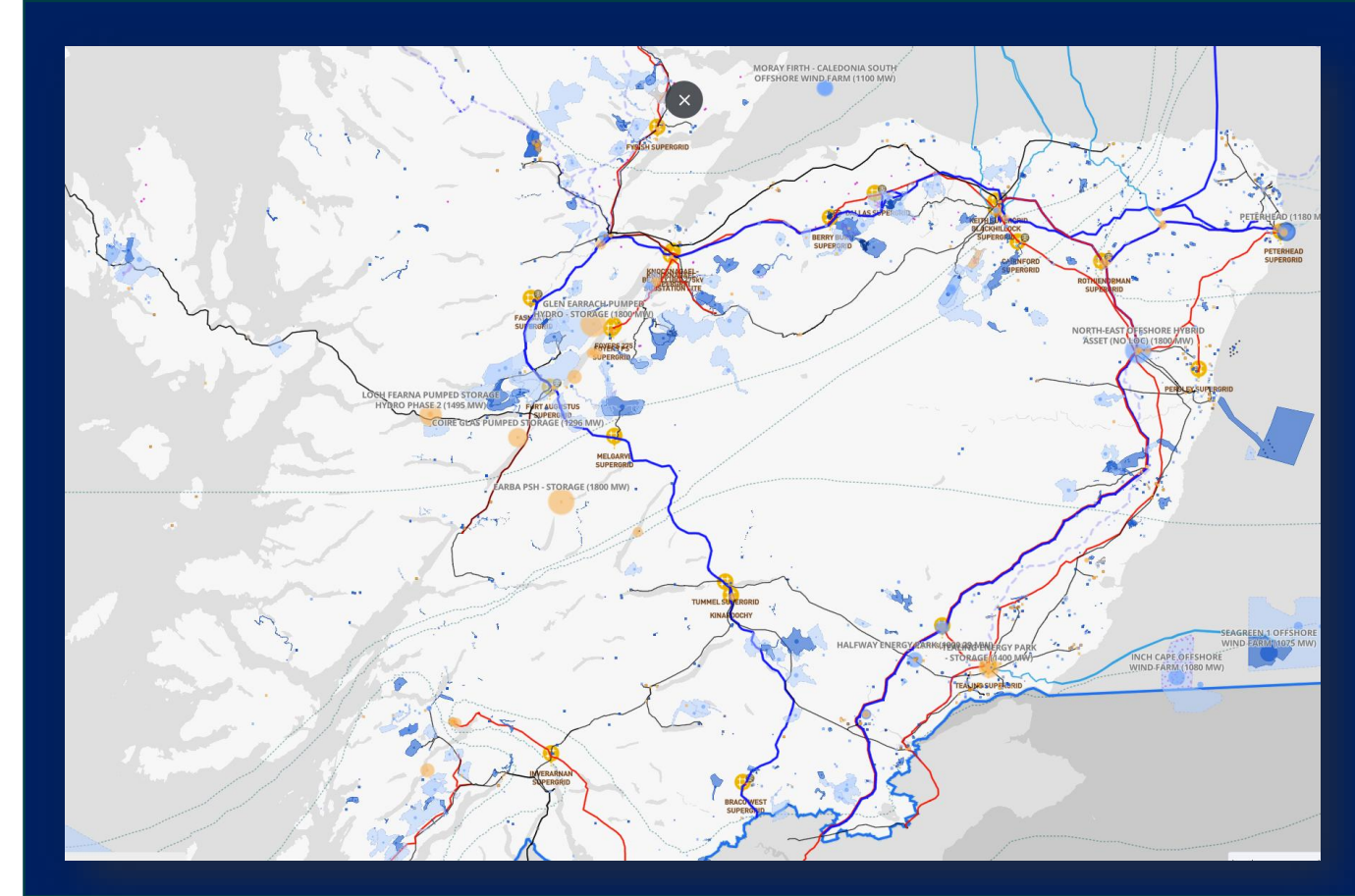
The next phase of REACT will introduce advanced features including predictive project viability modelling, zonal capacity planning, dynamic scenario-based views, and mapping of renewable resource potential—offering deeper insights to support strategic, data-driven decision-making.

REACT is being developed by SSEN-Transmission, Olsights & MapStand
For more information contact: jonathan.powell@sse.com

The project is funded by network users and under the Strategic Innovation Fund, an Ofgem programme managed in partnership with UKRI.

The Problem

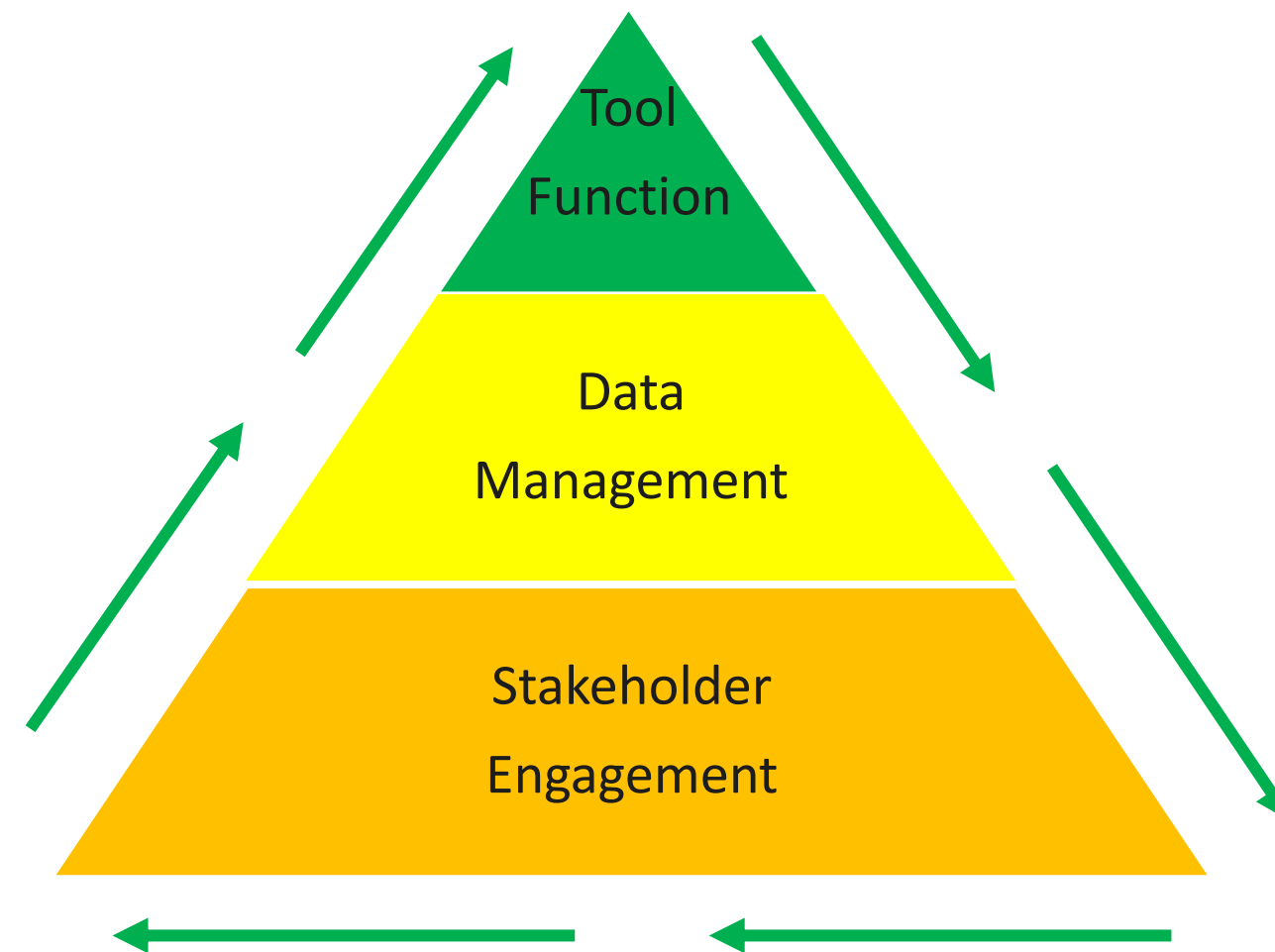
- The timely connection of renewable energy, new power demand and storage is crucial to realise UK's net zero targets.
- Delays are threatening the decarbonisation of the energy network in the targeted timeframes.
- Lack of early engagement with planning, consenting and community stakeholders creates planning risk and delays.
- **Currently** the process for reviewing connection requests is carried out in isolation with limited opportunity to explore more creative solutions that could be optimal for Network, Developers and Consumers/ Community.



Background: What is REACT?

An easy-to-use data-driven digital transmission-level geographical planning tool that:

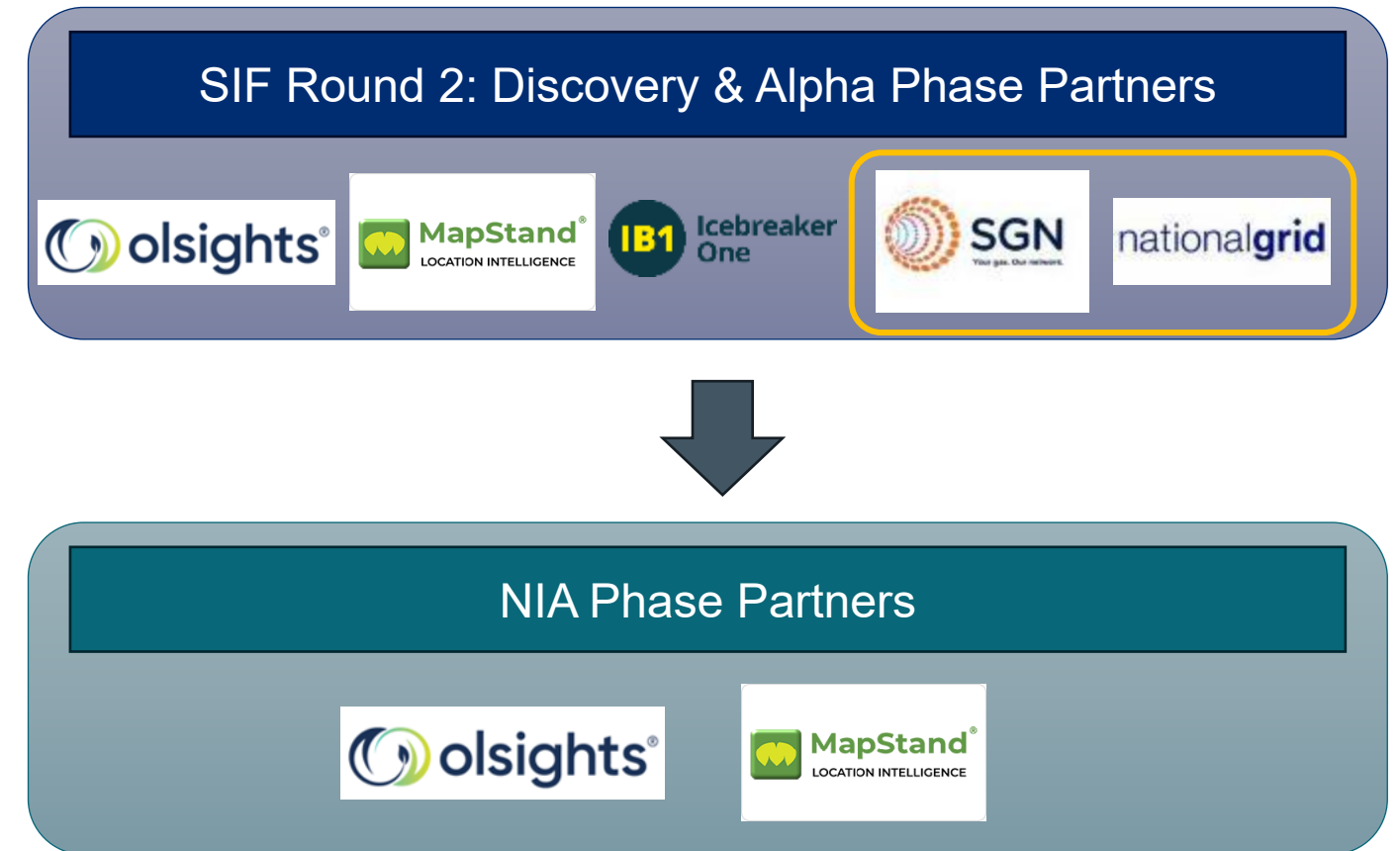
- Brings together data to help us understand the complexity involved with planning the energy system
- Provides insights and forecast on current and future generation, storage and demand connection requests
- Has functionality that is driven by the requirements of the key stakeholders



The REACT spatial visualisation is built upon an automated and live data model to deliver insight that enhance the efficient use of assets now and in the future

Background: Project Phases

- **SIF Round 2 Project: Discovery and Alpha**
 - Hydrogen opportunities as a use-case
 - **Externally** facing spatial planning tool
 - Helping developers understand the network
- **Decision to proceed as an NIA**
 - Looking at the full connections pipeline (especially onshore wind + battery projects)
 - **Internally** facing spatial network planning tool
 - Helping network system planners and analysts interpret and classify the connections pipeline

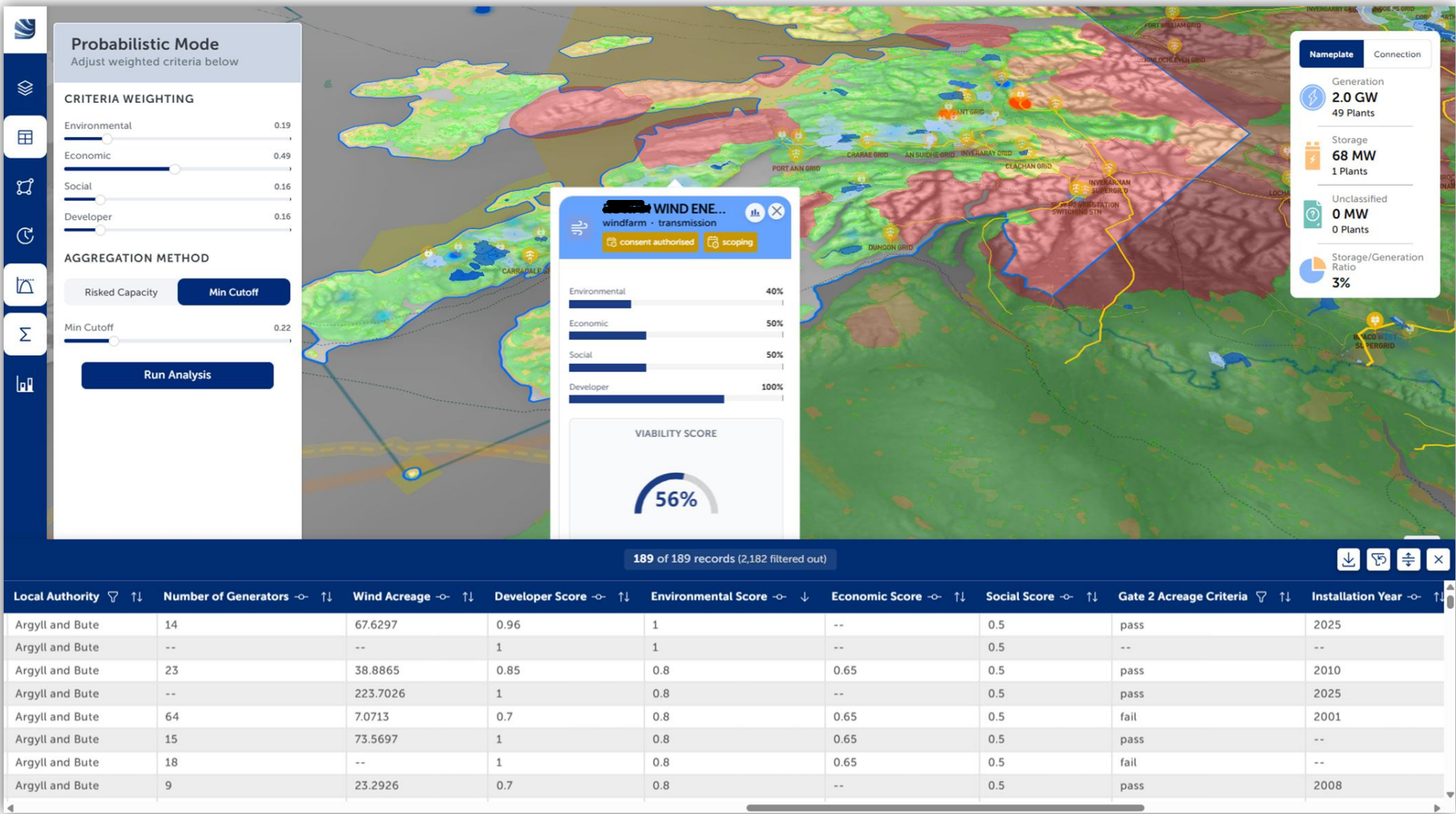


Use Case: Areal Viability & Risked Capacity

User Need:

- Key risk & success factors in ultimately connecting?
- Likelihood of early schemes achieving Gate 2 connection offer?
- Aggregate individual viability over an area to estimate 'expected capacity'?

Users: Power Transmission Strategic Energy Planning

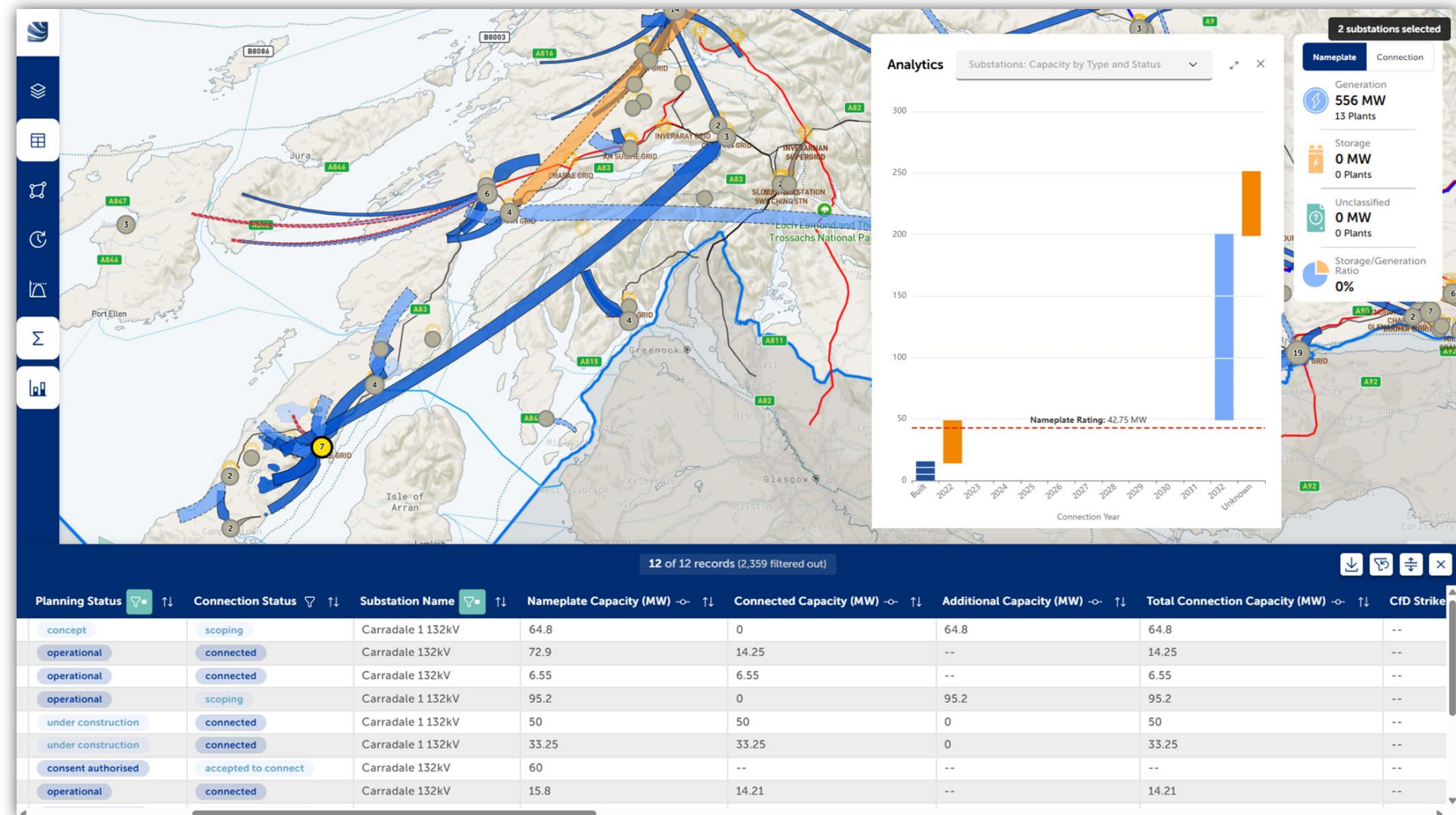


Use Case: Substation Capacity Buildup vs Rating

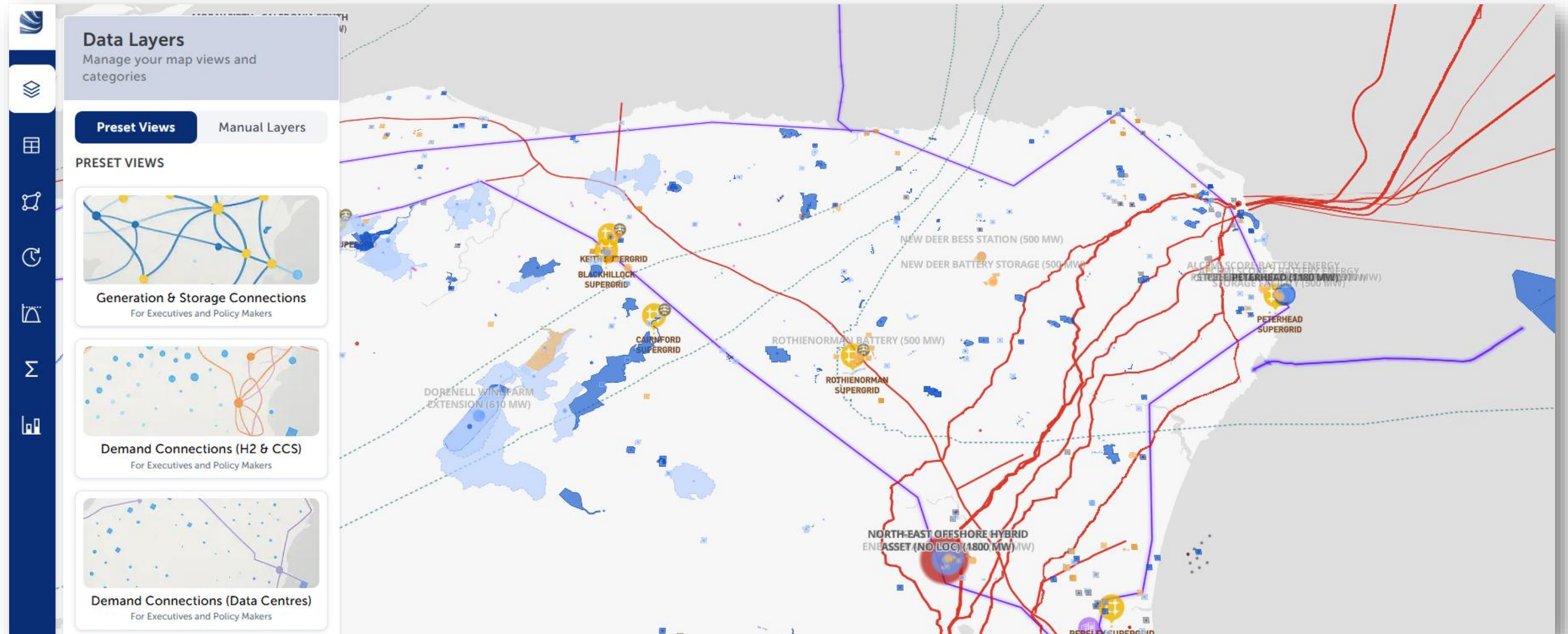
User Need:

- How to see connectivity between schemes & substations (within area)?
- What does capacity buildup look like + when does it exceed transformer rating?
- How much is generation vs storage?

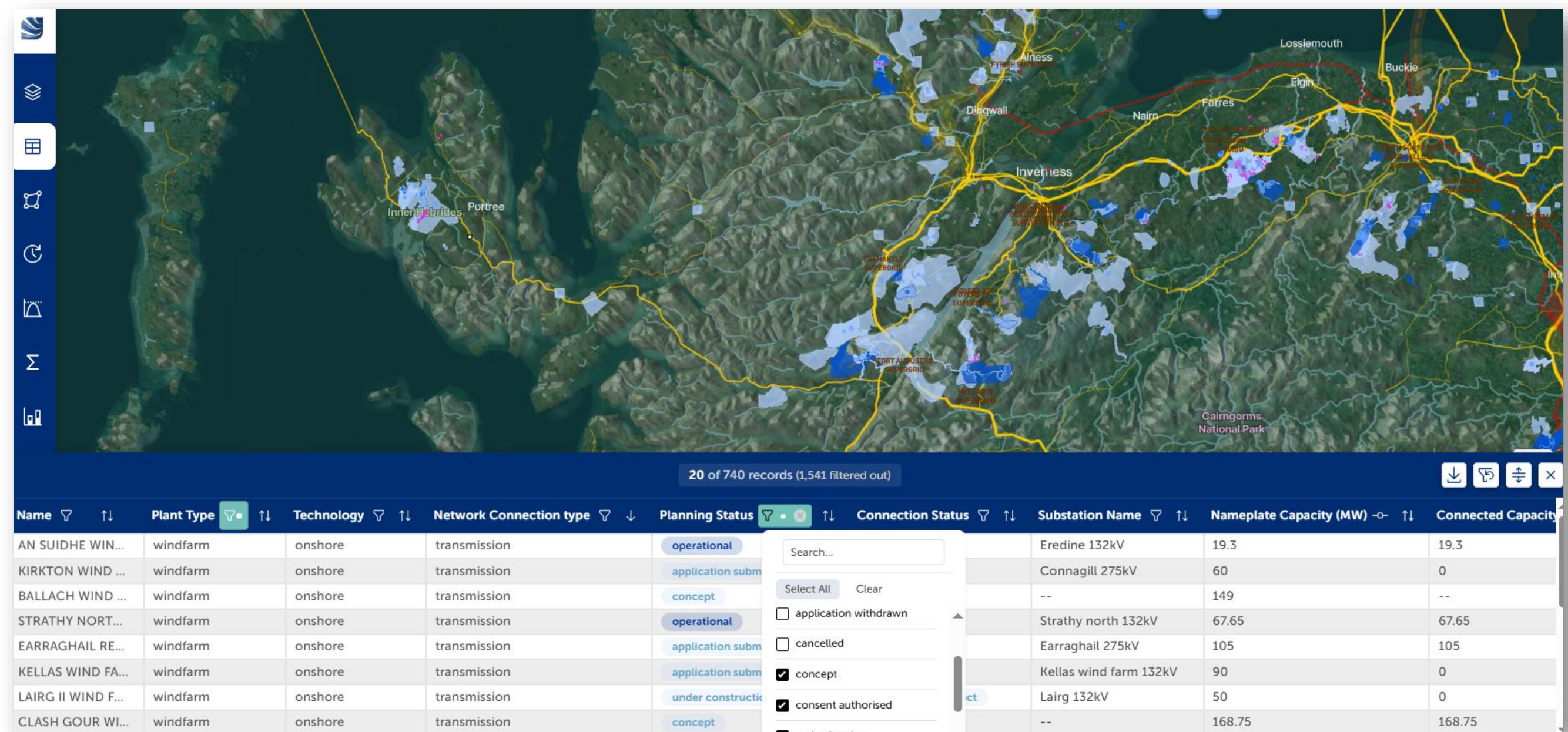
Users: Power Transmission Investment Planning



Features: Multiple Energy Systems/Networks



Features: Table View



20 of 740 records (1,541 filtered out)

Name	Plant Type	Technology	Network Connection type	Planning Status	Connection Status	Substation Name	Nameplate Capacity (MW)	Connected Capacity
AN SUIDHE WIN...	windfarm	onshore	transmission	operational		Eredine 132kV	19.3	19.3
KIRKTON WIND ...	windfarm	onshore	transmission	application subm		Connagill 275kV	60	0
BALLACH WIND ...	windfarm	onshore	transmission	concept		--	149	--
STRATHY NORT...	windfarm	onshore	transmission	operational		Strathy north 132kV	67.65	67.65
EARRAGHAIL RE...	windfarm	onshore	transmission	application subm		Earraghail 275kV	105	105
KELLAS WIND FA...	windfarm	onshore	transmission	application subm		Kellas wind farm 132kV	90	0
LAIRG II WIND F...	windfarm	onshore	transmission	under constructi		Lairg 132kV	50	0
CLASH GOUR WI...	windfarm	onshore	transmission	concept		--	168.75	168.75

Search...

Select All Clear

☐ application withdrawn

☐ cancelled

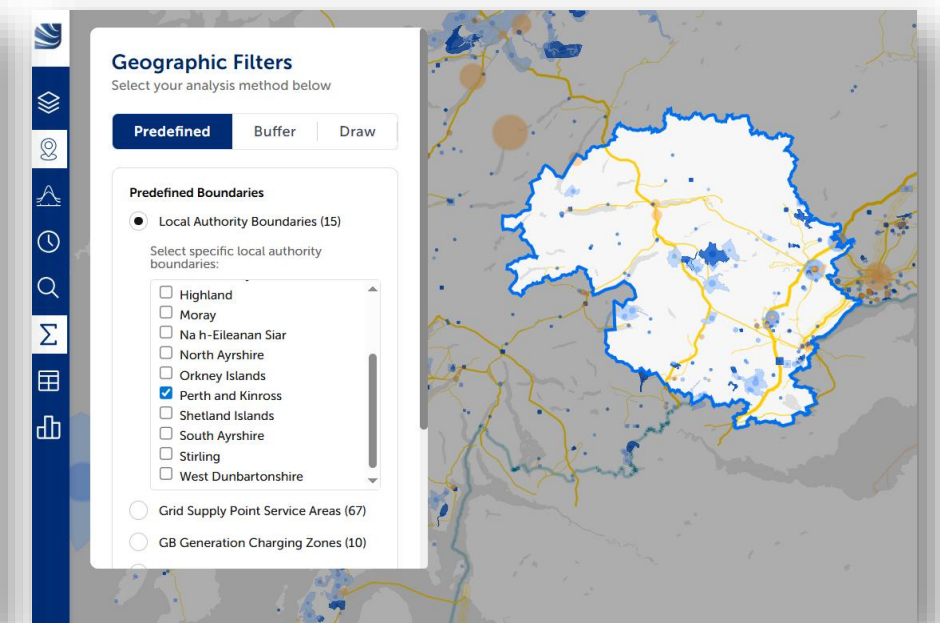
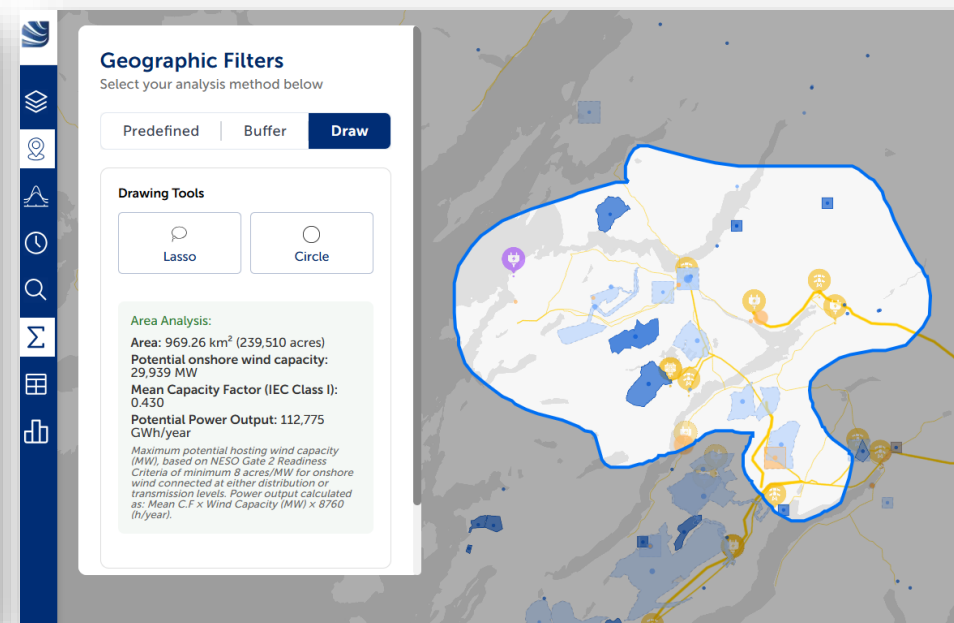
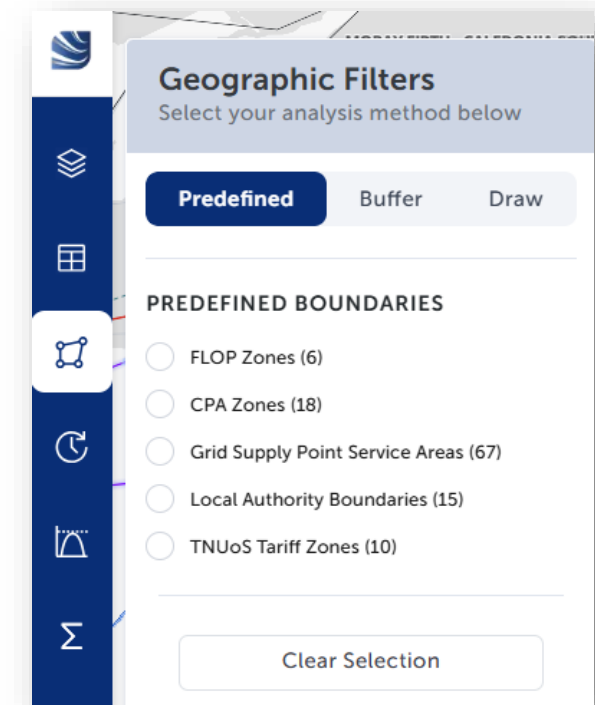
☒ concept

☒ consent authorised

Features: Geographic Filters

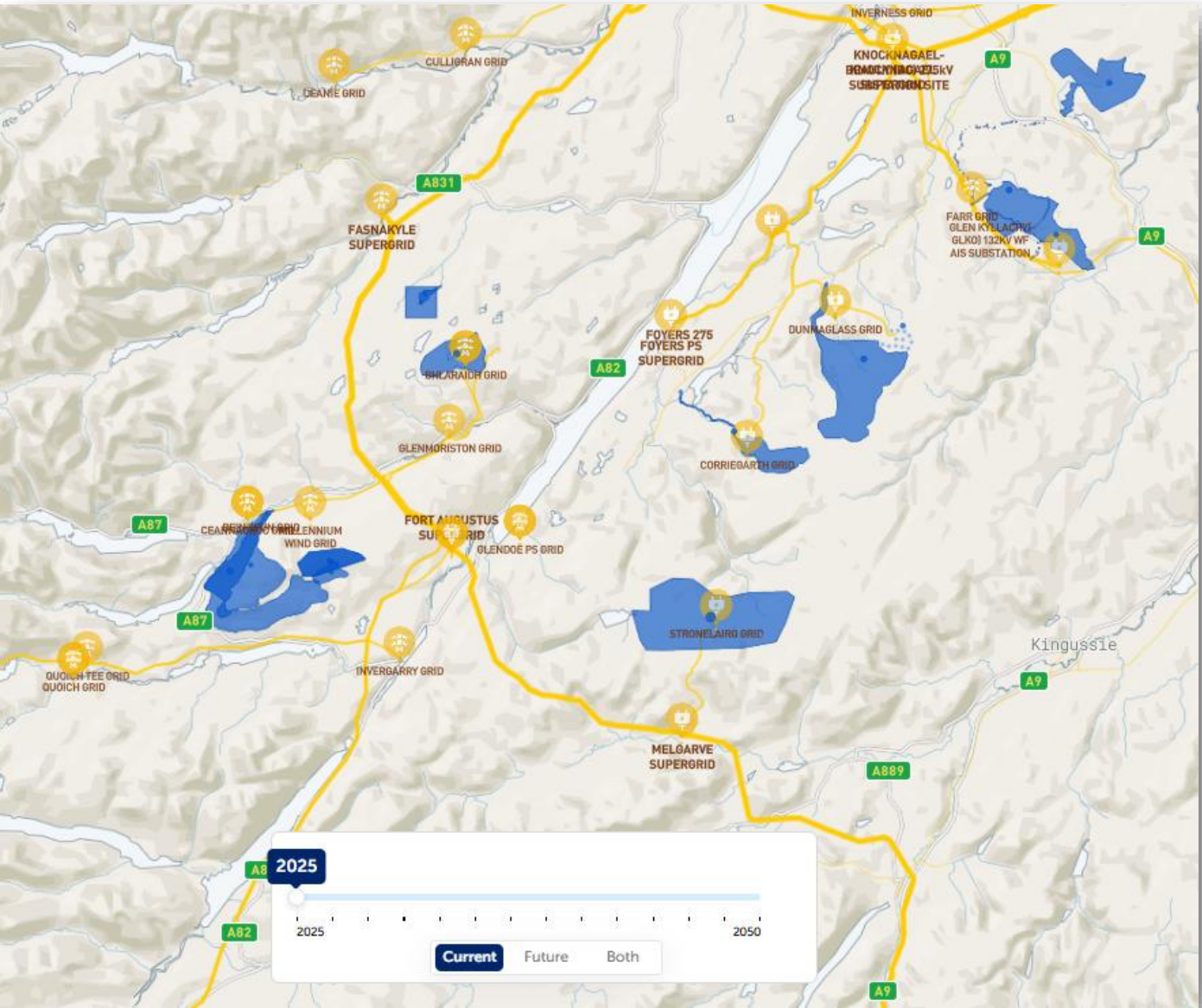
Fast & Flexible ways to Slice & Dice the Data

- Visual representation of area
- Instant filtering of pipeline based on geographic filters
- Totaliser, data tables and other insights updated based on filter

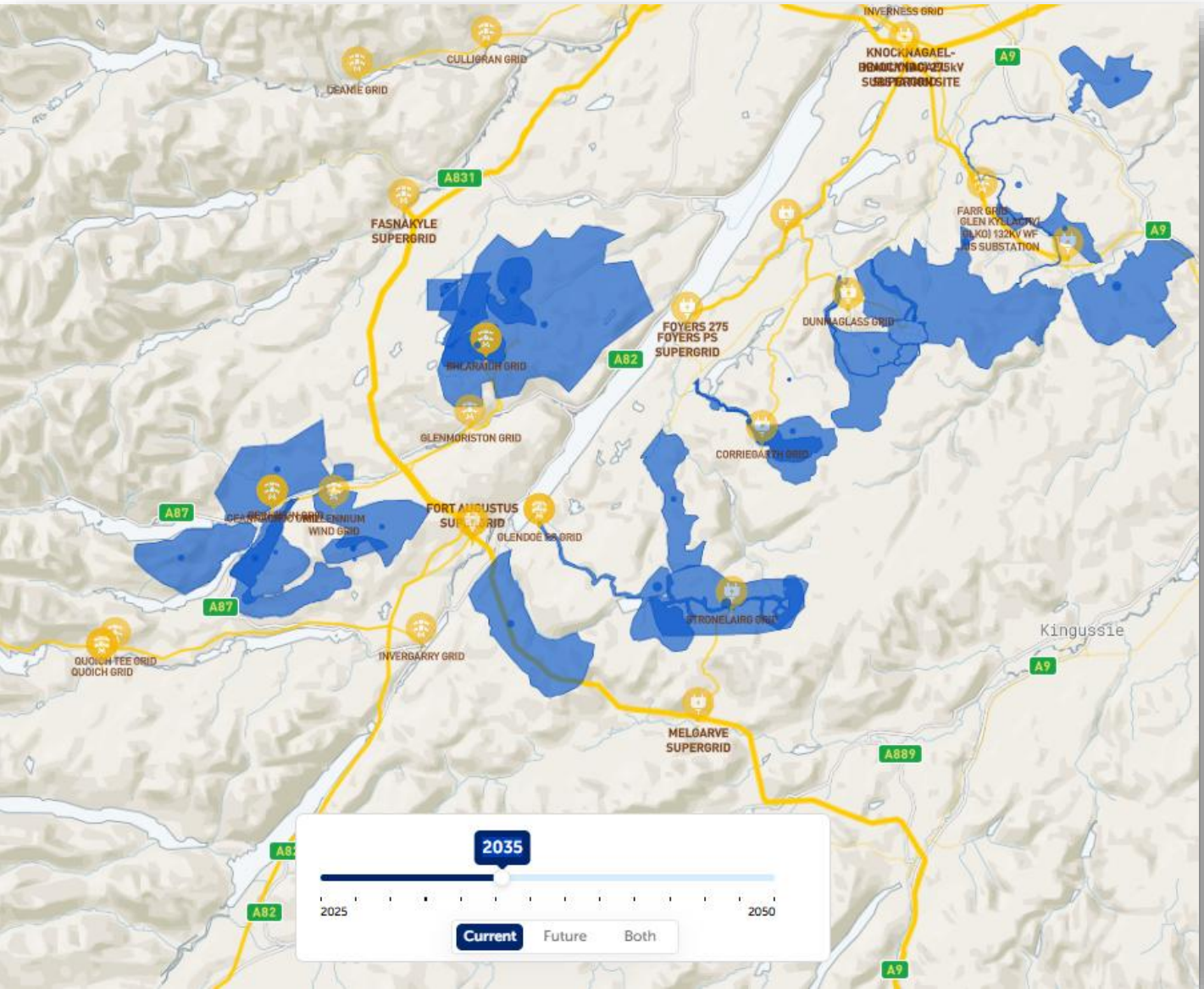


Features: Time Slider

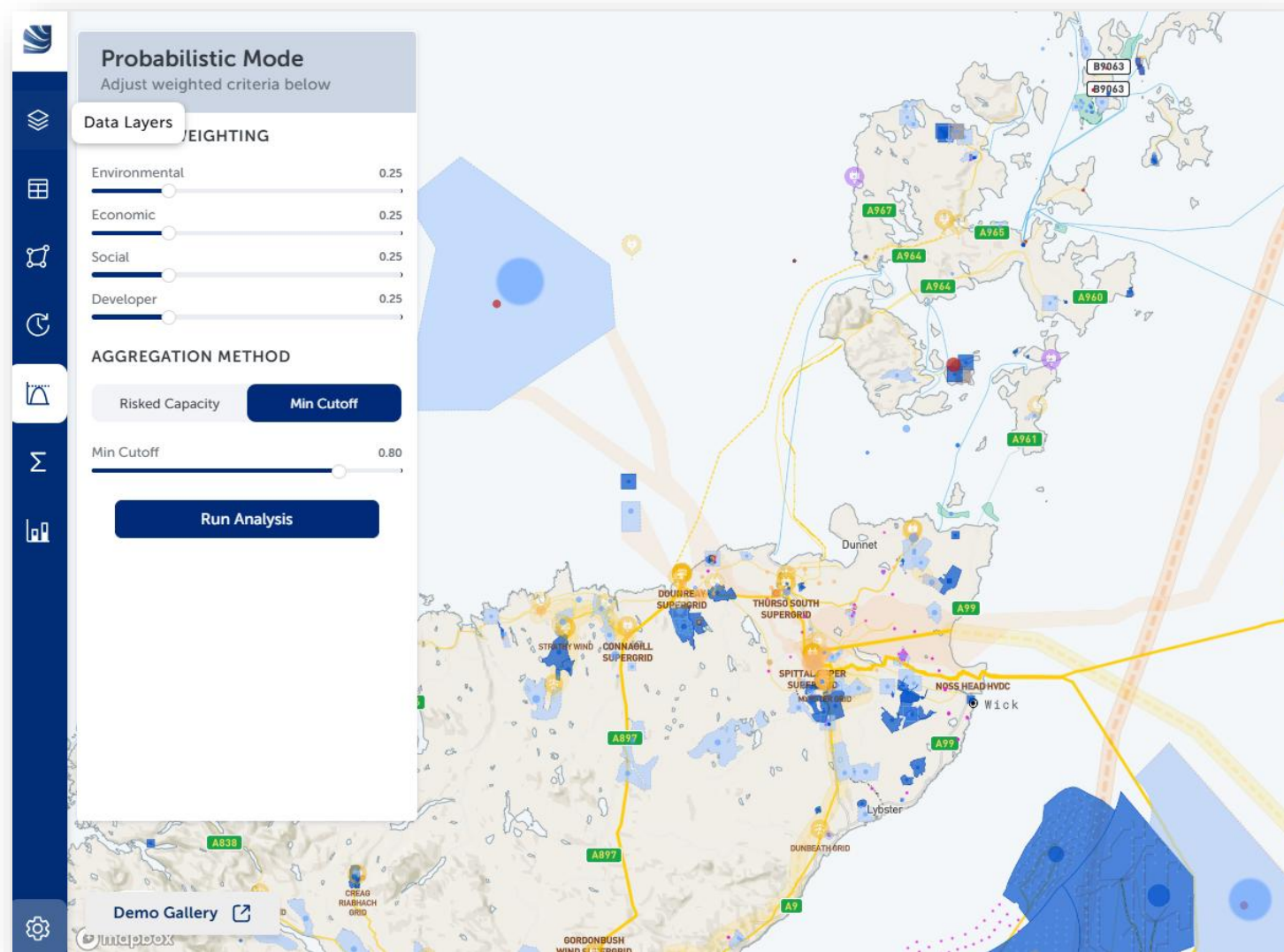
- Current View



- Future View



Features: Probabilistic Analysis of Pipeline



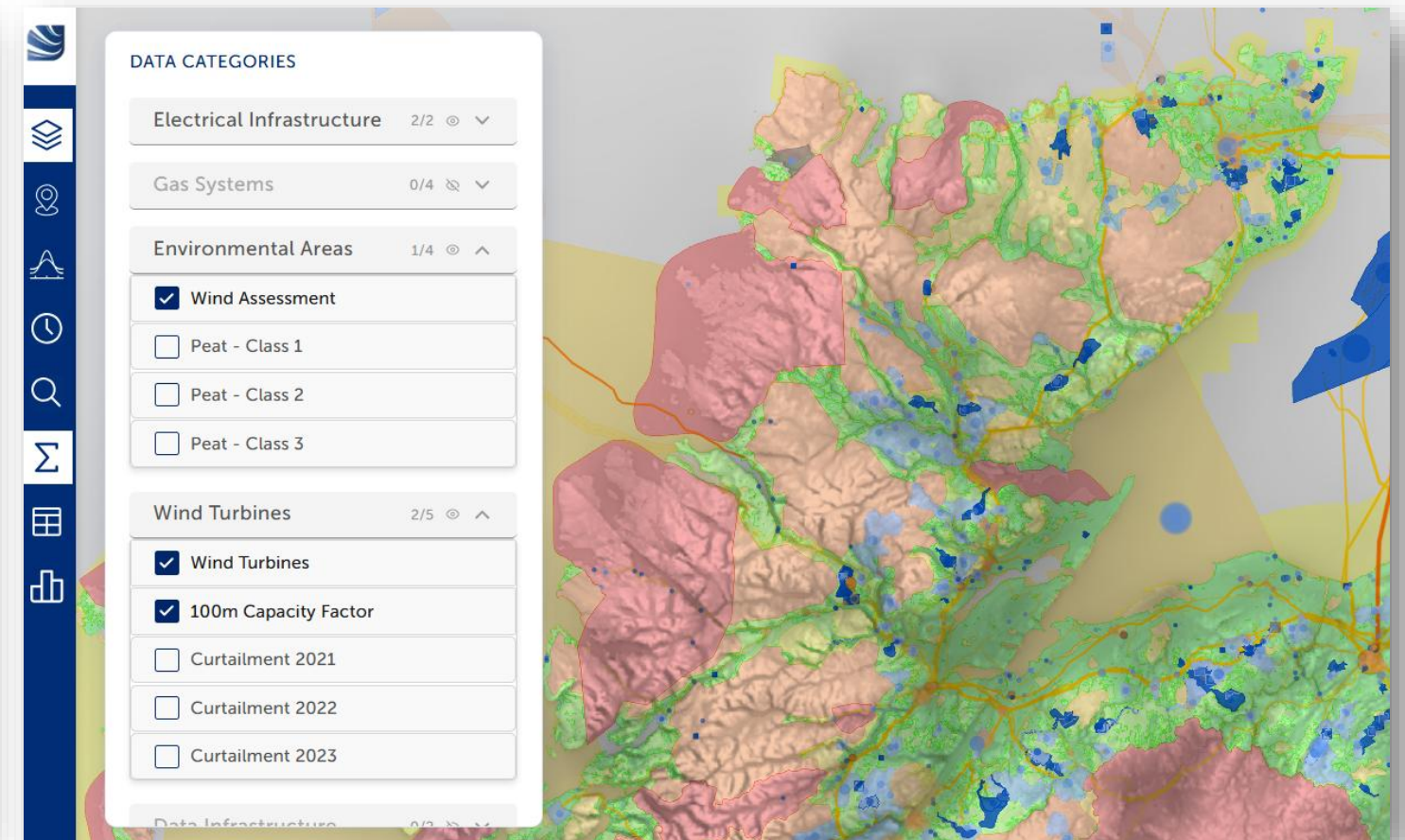
- Help inform our view on Gate-2 readiness
- Automated data model
- Pipeline data can be updated daily
- Flexible user driven application of scoring criteria
- Map & data table instantly updated based on criteria
- Allows for fast and flexible “what-if” analysis
- Data export to csv & ppt

Features: Insights based on Spatial Data

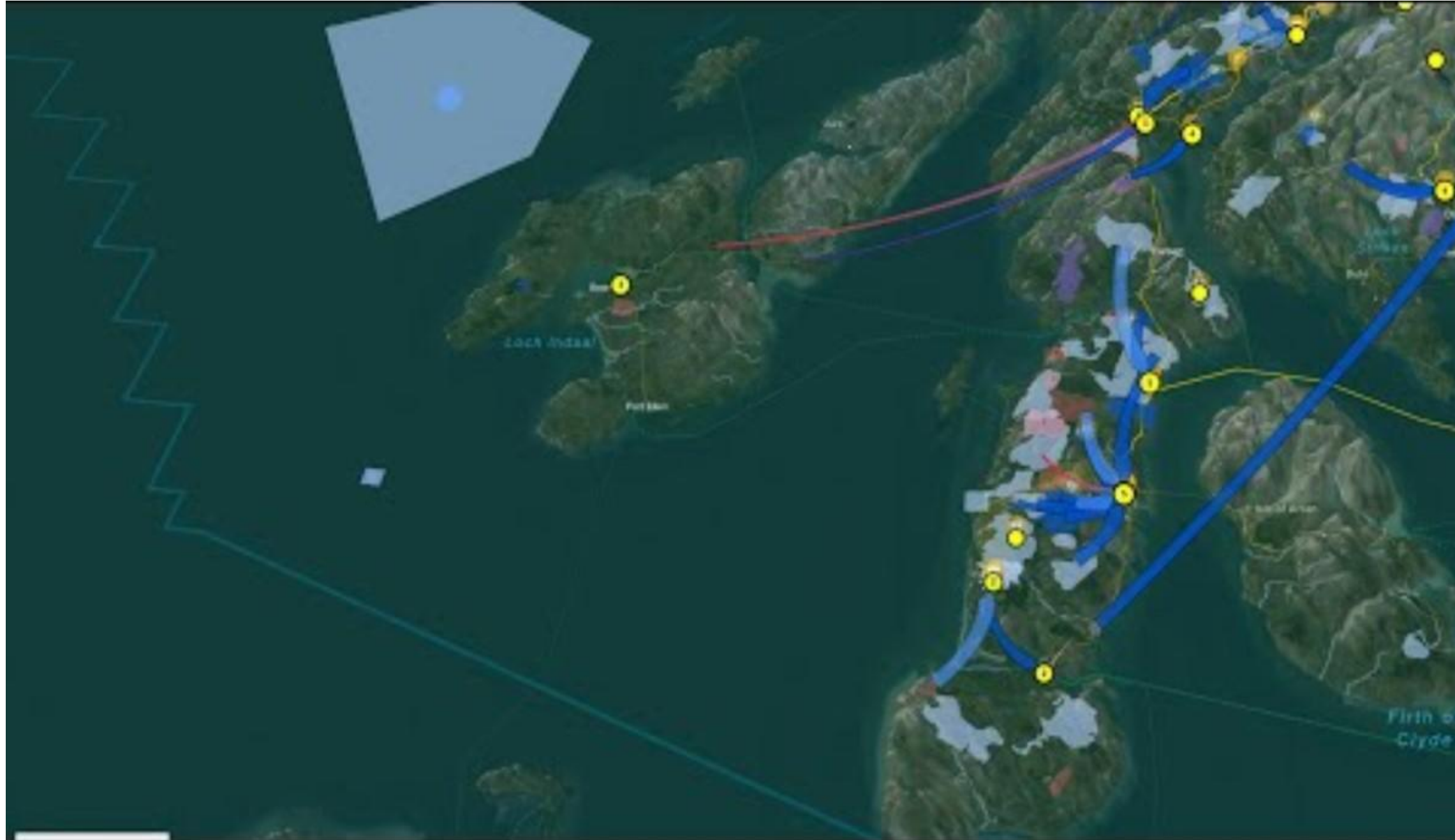
- Windfarm acreage measure



- Windfarm land suitability



The REACT Tool in Use



What's Next

Deployment of REACT within the business

- Supporting the internal assessment of new schemes
- Application of tool to assist with network planning 2035

Further Development Options

- Potential to broaden the REACT platform to UK-wide
- Expand the capabilities of the REACT platform

REACT - Open to Feedback & Collaboration



Please reach out for further details

Johanna Behaim: System Planning

Johanna.Behaim@sse.com

Jonathan Powell: Innovation

Jonathan.Powell@sse.com