Data-driven fleet planning software and consultancy for cost-effective decarbonisation

Dynamon Story....

- Began working with London 2012 Olympic rowing team
- Advanced simulation and data analytics
- Identifying marginal gains of improvement in athlete performance
- Methodology has been applied and scaled to the transport industry
- Optimise the cost efficiency of procurement choices for fleets
- Completed projects across UK, Europe and the US

ZEHID Involvement

- £200m of investment from DfT across 4 consortiums
- Over 35 fleets involved
- 300-320 x Battery Electric (BEVs) + 40-50 x Hydrogen Fuel Cell (HFCEVs)
- Trial will run for 5 years

- Dynamon is in 2 consortiums – eFREIGHT 2030 + ZEN Freight
    - Data aggregation, Planning analysis, On-going trial performance

Challenges with Grid Analysis for Fleets

- Typical fleet analysis
  - Based on fleet operations assumptions rather than actuals
  - Minimal fleet data parameters used
  - Excel spreadsheet-based analysis
  - Only high-level insights provided
  - Not focused on accuracy
  - Large margin of error
- Used for major investment decisions
- Not helpful to DNO's to prioritise size and timings of grid connection upgrades

Messaging in the Industry

"With three months of the year remaining, it is going to take a colossal turnaround to achieve the required ZEV Mandate target of 10% for 2024 and reflects a fleet sector that is lacking in confidence, put off by the current lack of appropriate infrastructure and effective support from the existing Government.“

Fleet News October 17th - Opinion: Manufacturers have work to do to hit ZEV van target

Fleet Decarbonisation Planning

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- Cost-effective fleet decarbonisation requires detailed planning and analysis
- Key benefits of a fleet decarbonisation plan:

Find cost-effective EV & charging solutions for your specific business	Maintain business continuity and minimise disruption	Give company executives confidence to invest in decarbonisation
Meet company sustainability goals cost-effectively	Retain customers and win new business	Achieve long-term financial gains and increase business success

ZERO The EV Fleet Transition Tool

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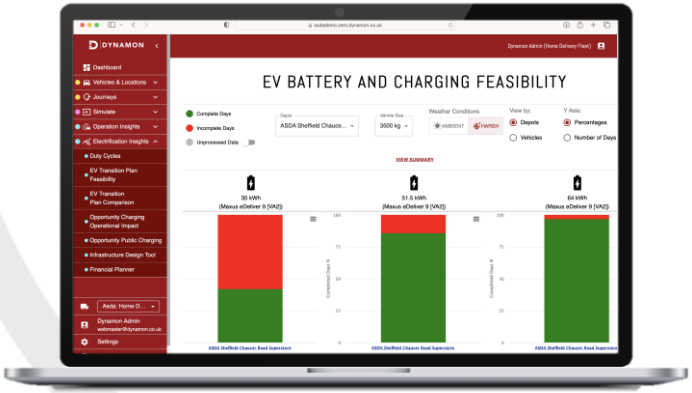

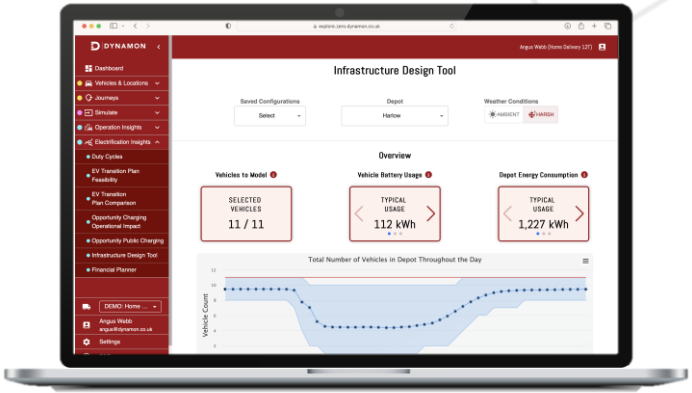

Key benefits of **ZERO** by Dynamon

EV SELECTION AND RANGE PREDICTION

ZERO identifies the optimum EVs with the right battery size for your operation. Using ZERO, you minimise fleet capital investment by correctly selecting vehicle assets.

ZERO performs journey analysis based on fleet operational data to determine the accurate real-world range of specific electric vehicles for any given operation or journey.

GRID AND INFRASTRUCTURE DESIGN

By analysing fleet operations, energy consumption, and depot stops, ZERO determines the optimal number and type of chargepoints to ensure EVs can operate efficiently whilst minimising investment costs.

EV charging will greatly increase depot electricity use. ZERO forecasts future demand to assess if the grid can meet this need and recommends solutions (such as grid upgrades, charger load-balancing, or micro-grid solutions) if it cannot.

PUBLIC CHARGING AND ROUTE OPTIMISATION

Fleets will need to use public charging where depot or private charging is not sufficient. Understanding future public charging needs is critical to a successful EV fleet transition plan.

ZERO forecasts where EVs will require top-up charging to complete journeys as well as providing accurate data on public charging cost, rerouting distances, and additional downtime.

TOTAL COST ANALYSIS & TARIFF OPTIMSATION

ZERO accurately forecasts EV fleet costs and CO_2 compared to your existing ICE operations, taking into account ICE vs EV depreciation, service & maintenance, insurance, and charging electricity costs.

ZERO Identifies the most cost-effective electricity pricing tariffs for charging electric vehicles, ensuring charging costs are minimised.

Electrification Plan for Gregory Distribution with ZERO

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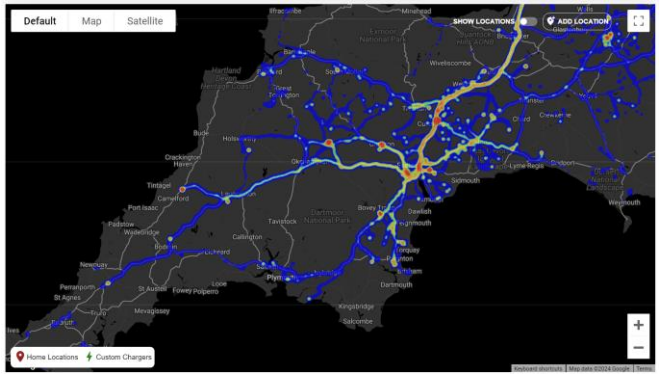
The Challenge
Gregory Distribution (fleet size 1,000+ vehicles) aims to be net-zero by 2038. However, their ICE fleet's limited return to depots posed a challenge for transitioning to EVs, which require regular charging.

Objective: Full telematics analysis to assess EV feasibility and infrastructure needs for national fleet operations. Recommend a cost-effective solution.

The Solution
Dynamon's ZERO software provided:
- In-depth fleet analysis and EV feasibility assessment, identifying a 621kWh electric truck as suitable for their operation.
- Planning and designing depot infrastructure to meet charging needs.
- Optimised charging strategies for a broad range of operational scenarios.



32
Vehicles analysed

4x 150kW depot Chargers

6
Vehicles electrifiable now

33%
Duty-cycle completed

4x 350kW depot Chargers

13
Vehicles electrifiable now

48%
Duty-cycle completed

Fleet Movements + Dwell Time

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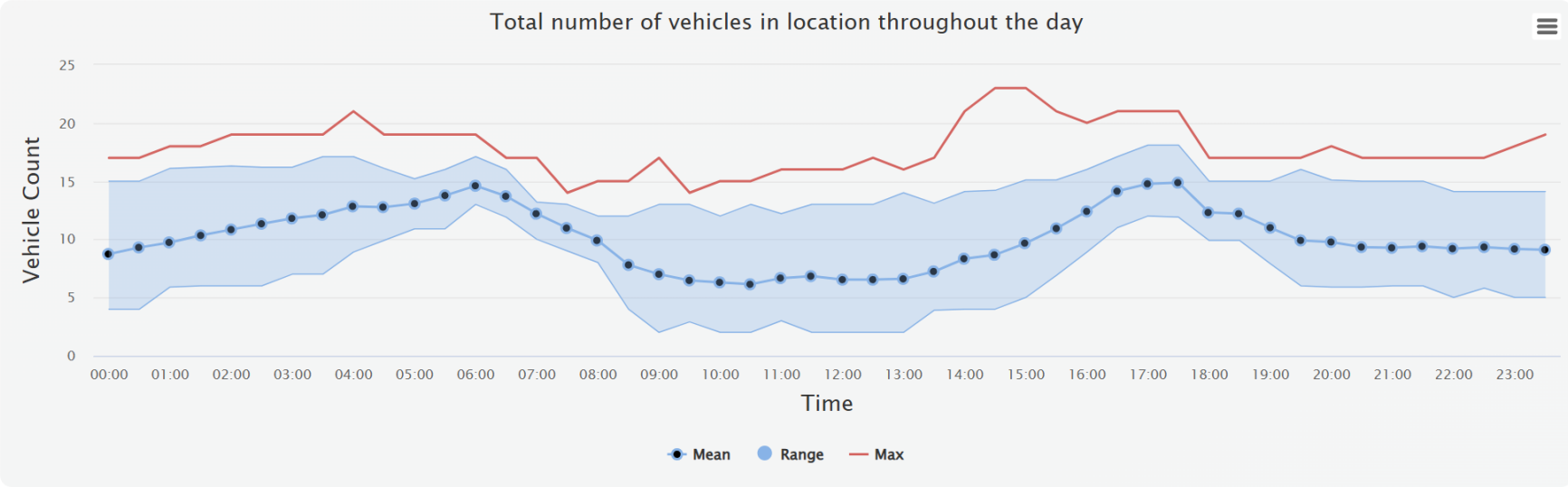

Impact on Grid Capacity

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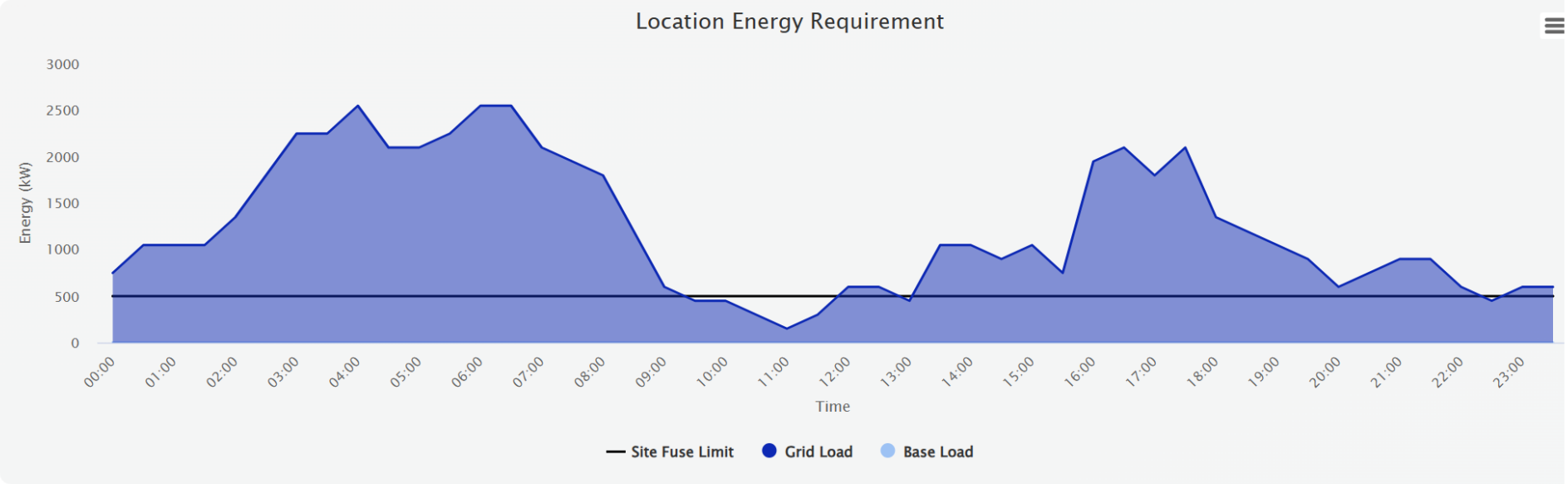

Impact on Grid Capacity

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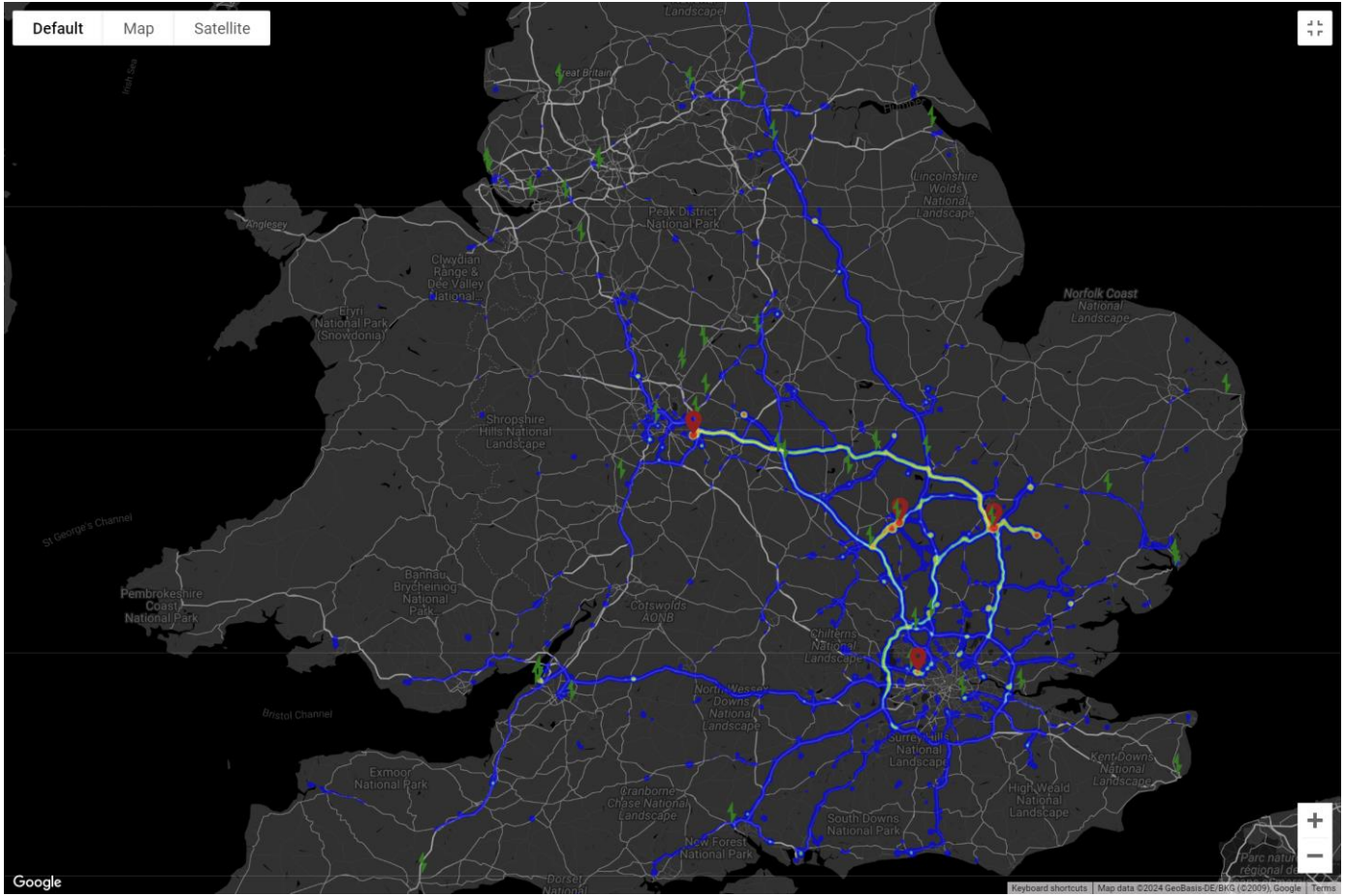
				Managed Charging			
Number of Trucks	Total Energy	Charger	Unmanaged	# of Chargers	No Battery	750 kW Battery	1.5 mW Battery
5	4,460 kW	150 kW	450 kW	2	300 kW	200 kW	200 kW
5	4,460 kW	350 kW	1,050 kW	1	350 kW	275 kW	205 kW
10	8,523 kW	150 kW	1,050 kW	4	600 kW	430 kW	400 kW
10	8,523 kW	350 kW	1,750 kW	2	700 kW	550 kW	410 kW
20	19,827 kW	150 kW	1,500 kW	7	1,050 kW	900 kW	840 kW
20	19,827 kW	350 kW	2,800 kW	6	1,150 kW	975 kW	915 kW
32	29,969 kW	150 kW	2,250 kW	10	1,550 kW	1,350 kW	1,300 kW
32	29,969 kW	350 kW	3,850 kW	5	1,750 kW	1,450 kW	1,400 kW

Top-Up Charging - Welch's Transport Analysis



Top-Up Charging - Welch's Transport Analysis

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EV TRANSITION PLAN FEASIBILITY

View by: Locations: All Locations; Vehicle Class: Heavy Vehicle Large

Simulation Toggle: Weather Conditions: Ideal / Harsh; Top-up Charging: NO / YES

Y Axis: Journeys Completed: PERCENTAGES / NO. OF DAYS

Unprocessed Data

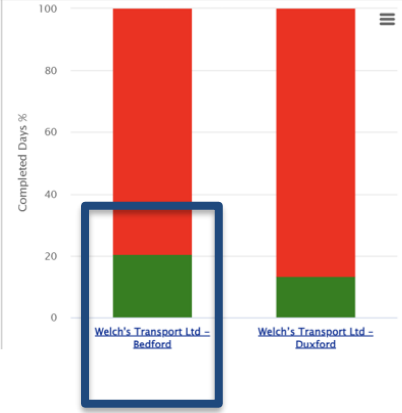
Complete Days Incomplete Days VIEW SUMMARY

Welches only (150 kW)

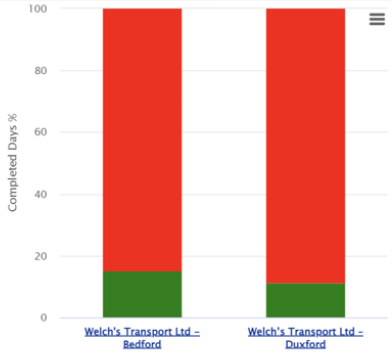
Welches and Voltempo (150 kW)

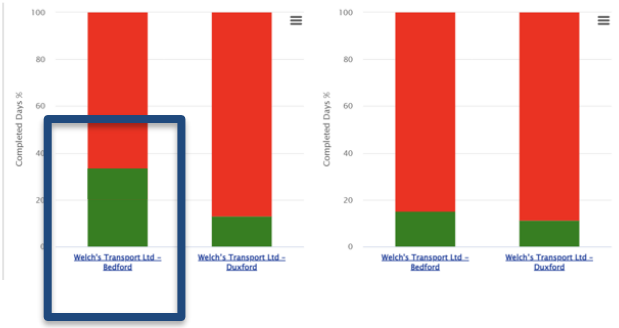
Welches, Voltempo, and Fleete (150 kW)

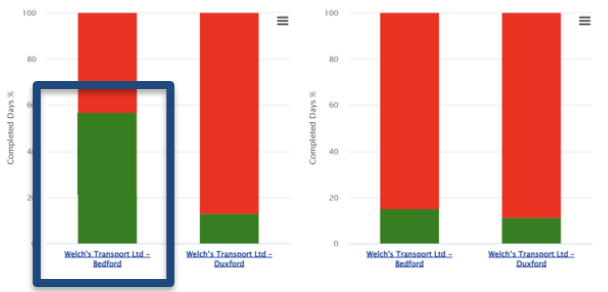
Renault E-Tech CS 378
3 Axle Curtainsider 378kWh (with charging curve)



Renault E-Tech Double-deck 378
Double-deck trailer 378kWh (with charging curve)







Top-Up Charging - Welch's Transport Analysis

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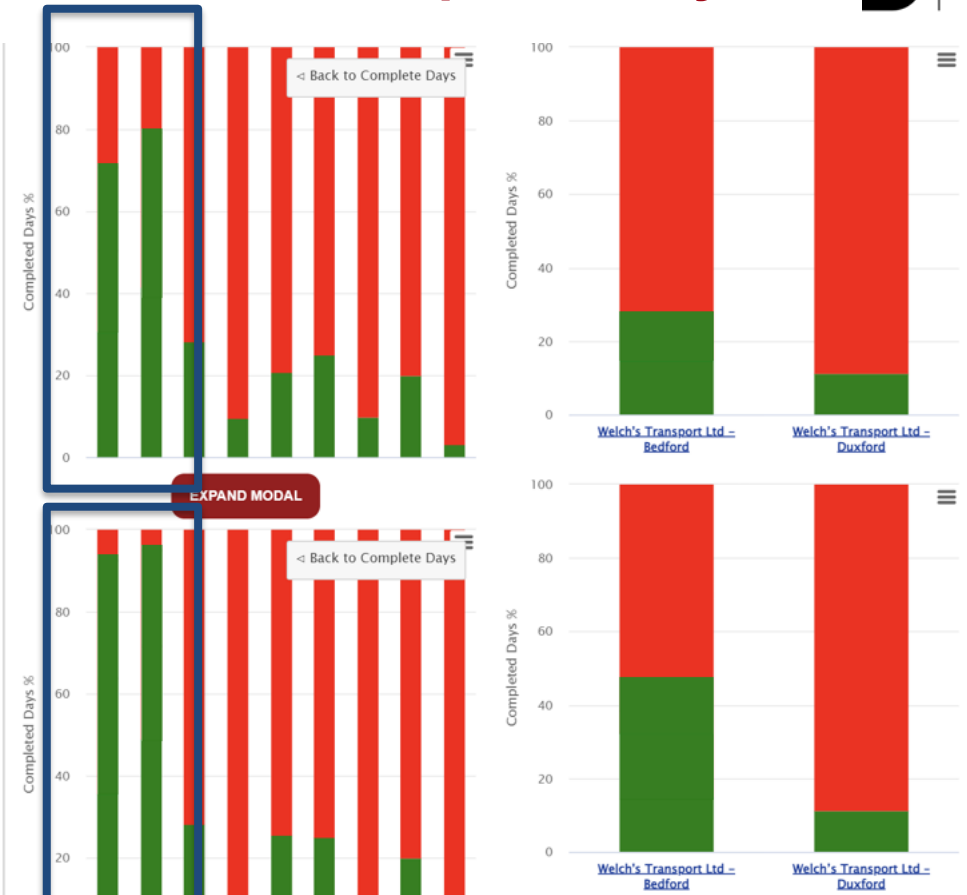
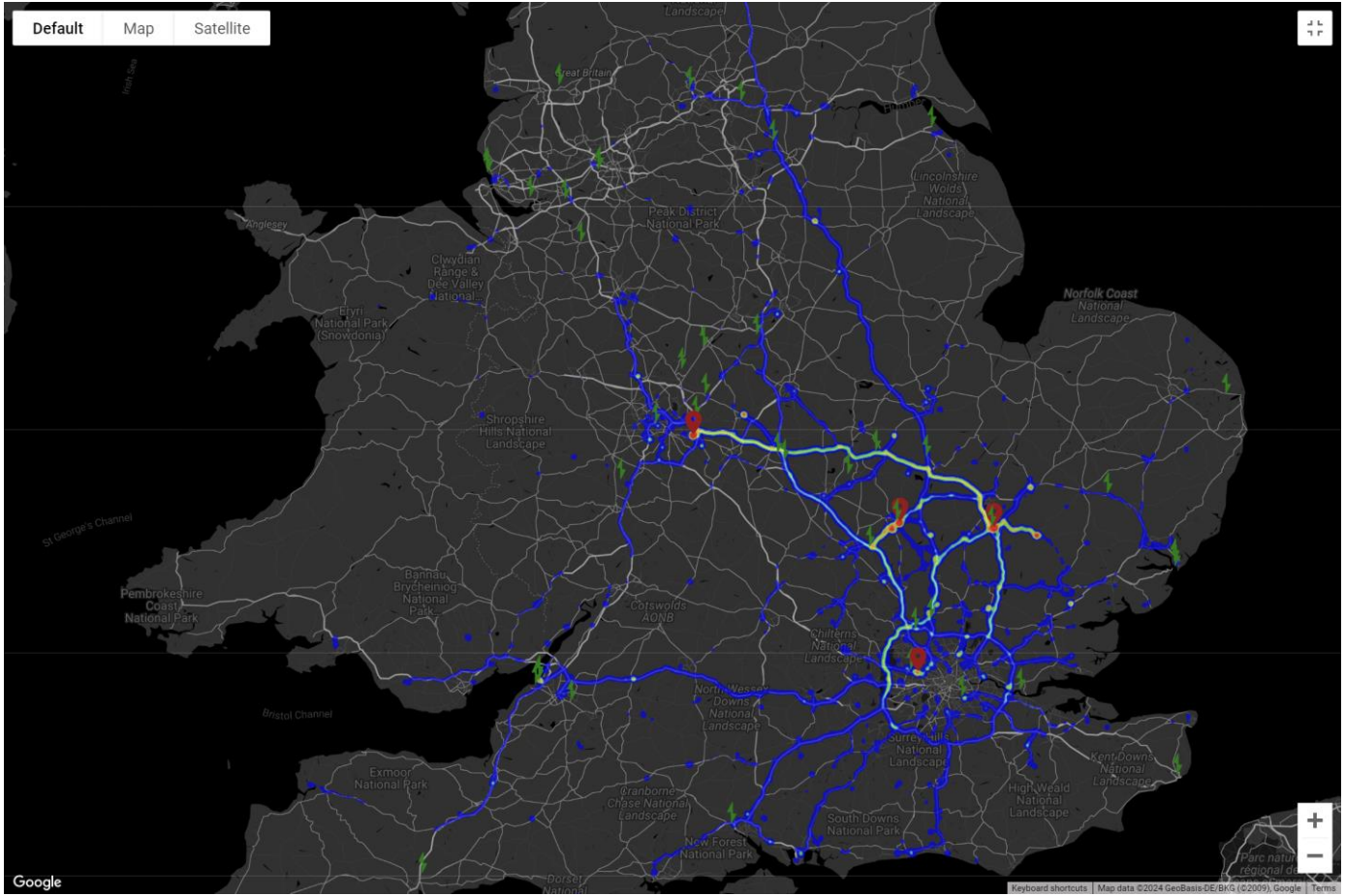
Welches and Voltempo (150 kW)

Welches, Voltempo, and Fleete (150 kW)



Fleet Data Aggregation



Key Take-Aways

- Fleets can electrify more vehicles today based on current infrastructure
- Fleets typically not completing robust, data-led, planning analysis
- Tools are available to provide very detailed and accurate insights on grid needs
- Flexibility to analyse multiple scenarios
- Insights available to understand electrification journey over time
- DNOs could ask for detailed analysis results with any grid upgrade request

Contact

If you would like to connect, learn more about our software tools and discuss your requirements please contact:

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