ZERO by DYNAMON

APSE Transport Advisory Group

Fleet Decarbonisation
31 January 2024

Agenda

Transition to Electric Vehicles

- How to model an existing fleet to determine the optimum vehicle mix, load requirement and location within existing grid capacity as we transition to Net-zero. Includes the ‘EV transition test’.

Introducing **Zero**

- Forecasts performance of Electric Vehicles and charging infrastructure across all fleet departments and depots.
- Provides high-value insights for strategy, planning, procurement and operations.
- Uses advanced simulation, data analytics technology and our proprietary EV performance database.
- Integrates with real-world telematics to make sense of in-life data, enabling better fleet management decision-making.
- Provided as a Software-as-a-Service tool, scaled through Cloud-based infrastructure.

"The transition to electric is very exciting and full of possibilities. But for too many fleets, it also comes with uncertainty. At Dynamon, we create certainty, helping them get it right, first time."
Dr Angus Webb

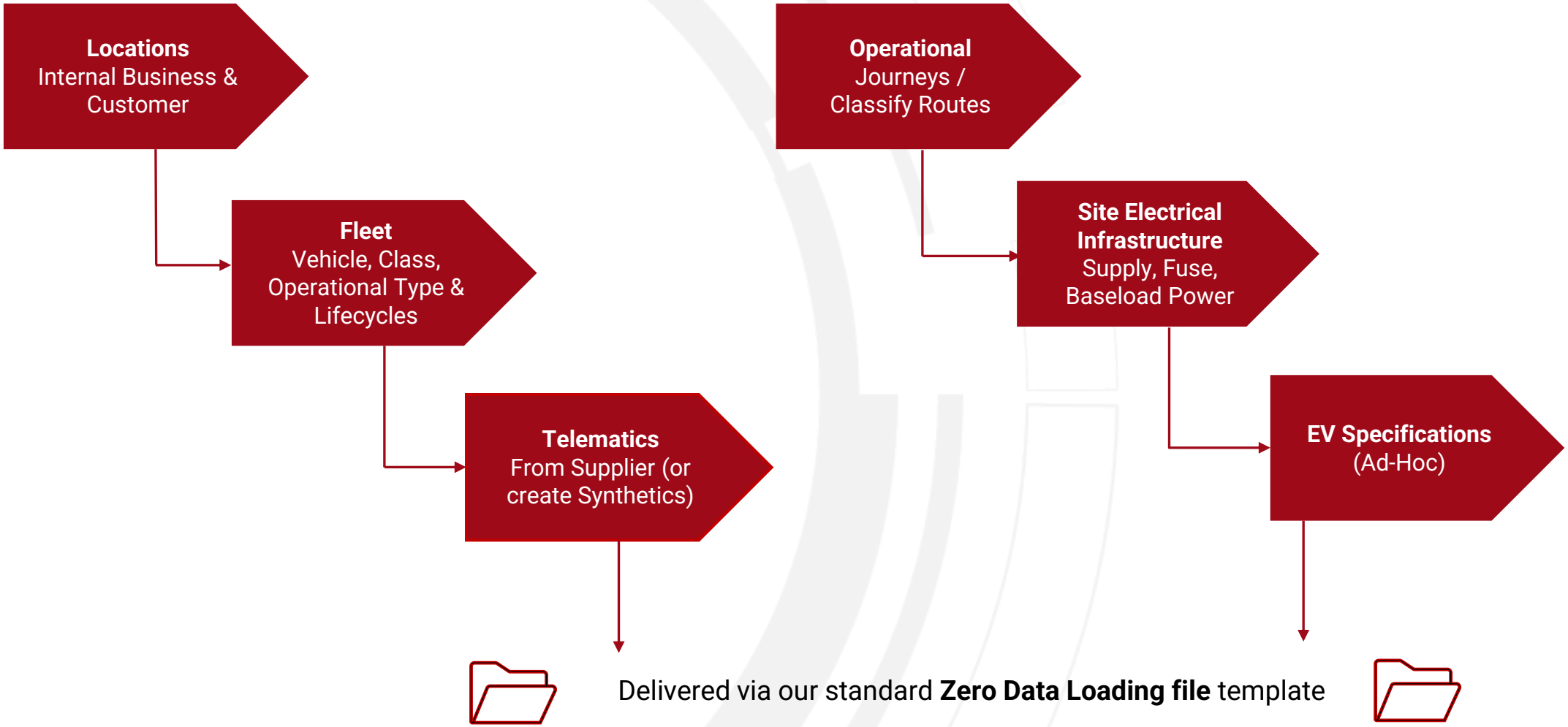
Dynamon

Our **Customer Success Team**
Our approach to **Project Management**

Dynamon - Customer Project Planning Workflow

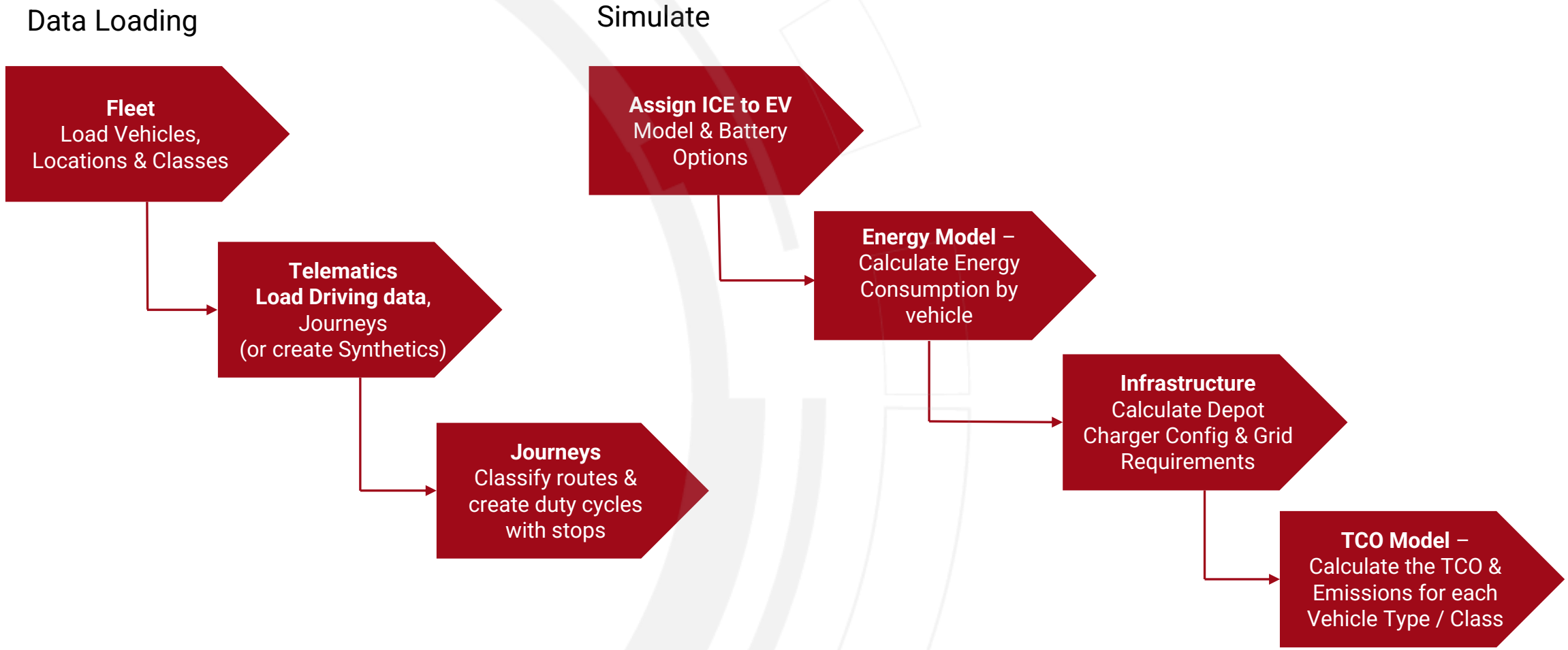
Local Authority Teams
What do we need from you?

Zero - Customer Data Collection Workflow



Delivering change via a **Partnership based** approach

Zero - Data Loading & Simulation Pipeline



Partnerships - Working together

Options for driving Fleet related transition & decarbonisation plans

- LA Teams can analyse Zero outputs internally with own resources

- LA Teams can partner with and APSE associate to deliver the plan options
  - Learn best practice and share opportunities with others
  - Measure outputs and change supported by APSE performance networks
  - Grab some APSE awards during 2024

- LA Teams could use their own contractors

- Dynamon could support

Over 300 councils have declared Climate emergencies to date!
Is “do nothing” still an option?

Insights and **Analysis**

Insights/Analysis Summary - How can Zero help ?

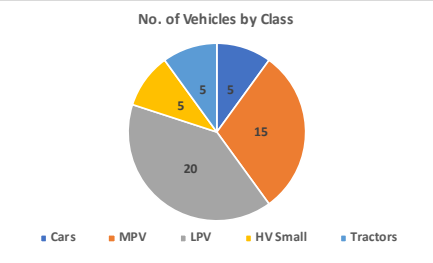
Dashboards, KPI's & Reporting Metrics	Develop fleet transition plan with options
Vehicle Utilisation Baseline Review	Visualisation of low utilisation assets Optimisation the number of assets required by operational team
EV Energy Model	Forecast energy usage demand by vehicle & operational duty cycle
ICE to EV Transition Plan Feasibility	Assign EV Spec options to ICE Vehicle types Simulate Different Vehicle Battery Sizes & Charger Configurations Develop emissions reduction opportunities
Depot Charging Infrastructure Model	Develop infrastructure design for each depot Calculate the number & type of chargers required (AC/DC) Identify Grid requirements / Public charging Depot tariff optimisation
Financial Planning Total Costs of Ownership	Financial Impact Assessment - ICV vs EV by Class/type Capex & Opex Cash Flow identification Emissions reduction benefits
Fleet Decarbonisation Roll Out Plan – 10 Years	Lifecycle transition planning by Vehicle Class/Type

KPI's "As-Is" Baseline & "To-Be" Reporting

Higest level - Customer "As-Is" Baseline

1

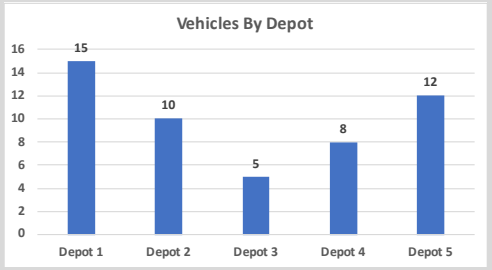
Total Number of Fleet ICE Vehicles by Class
50



Drill into data by Deport and / or Vehicle Class
In future this KPI could also be by Catelory

2

Total Number of Depots & Vehicles
5

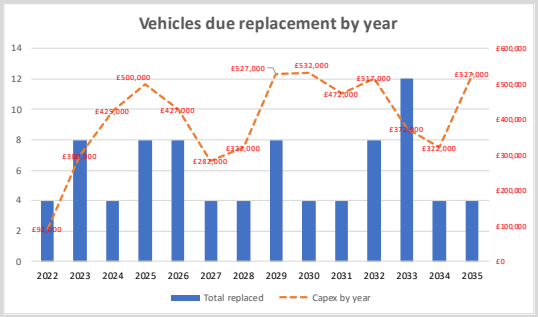


Drill into data by Deport & Vehicle Class

3

Vehicles due Replacement by Year

(Capex Value)

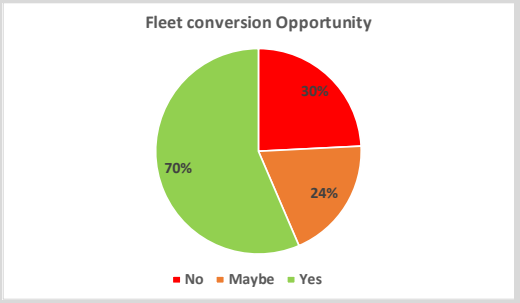


Drill into data by Vehicle Class & Replacement Year
Drill into data by Depot, Vehicle Class & Replacement Year

Higest level - Customer "To-Be" Opportunity

4

Total % of Fleet that can convert their Duty Cycles (RAG rated)

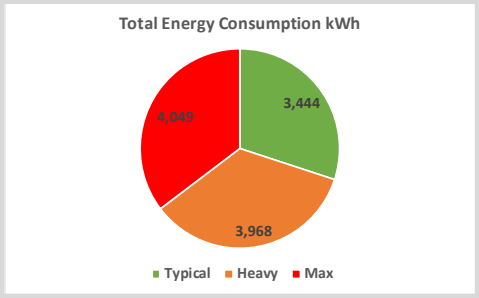


EV Transisition Assessment Frame detail from Zero

Drill into data by Depot & Conversion opportunity score
Drill into data by Vehicle Class & Conversion opportunity

5

Total Energy Consumption kWh
Weather condition = Harsh

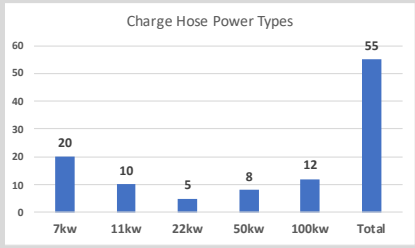


Highest level by deport

Drill into data by Depot

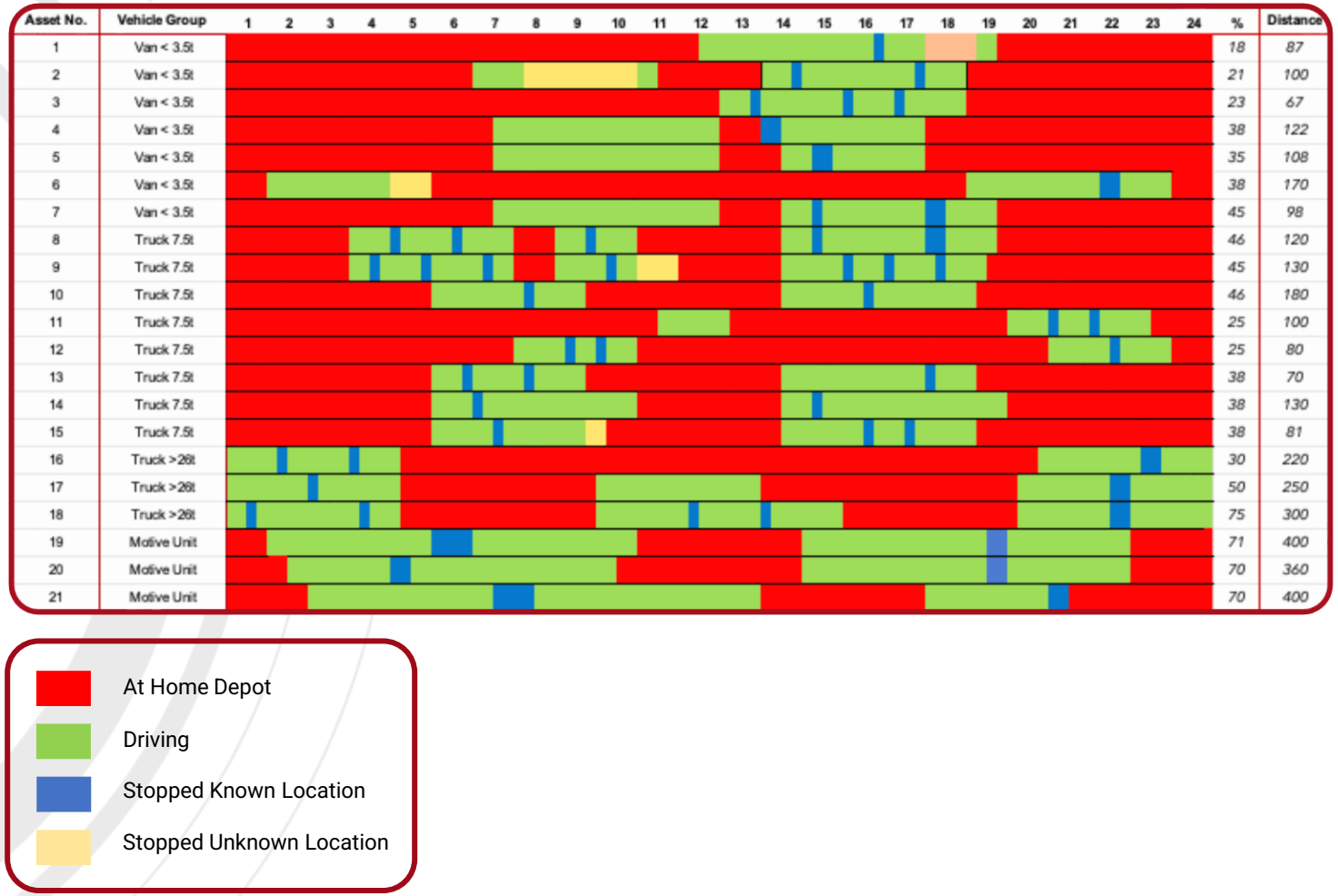
6

Total Number of Charging hoses required
55



Vehicle Utilisation – Operational Baseline

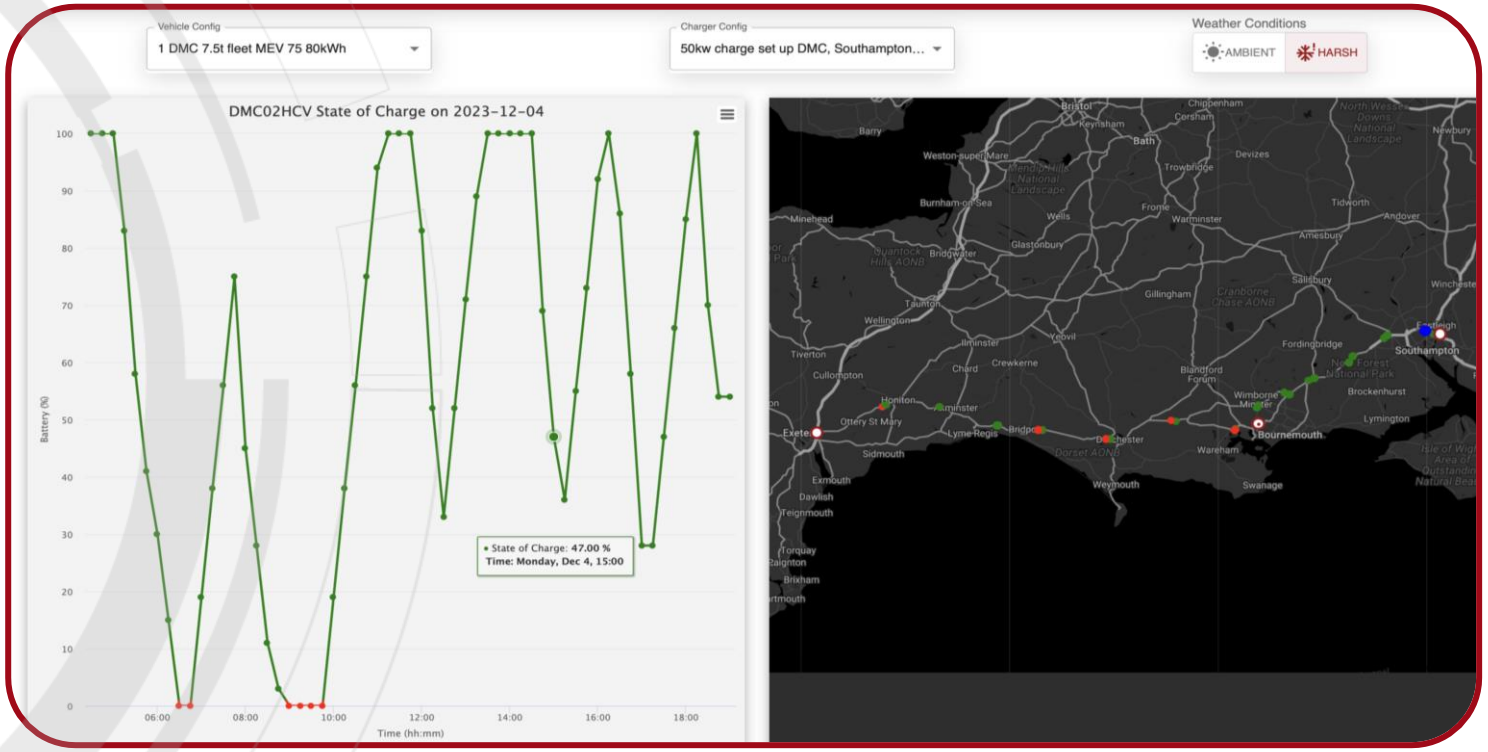
- ✓ Identify asset utilisation percentage at each location
- ✓ Visualisation of low utilisation assets for review
- ✓ Optimise the number of assets required for operational performance



EV Energy Model

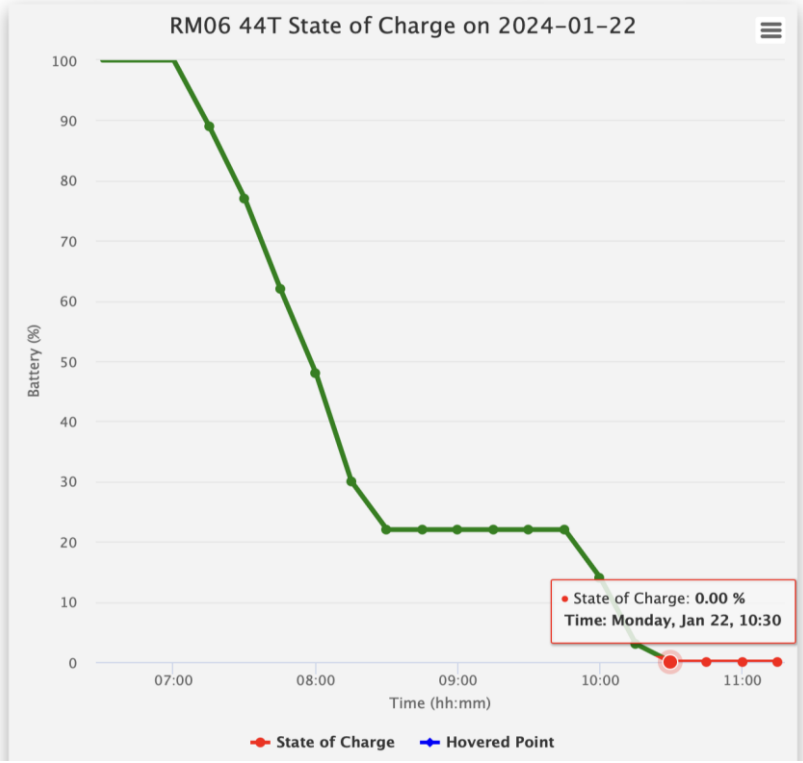
Driving data and locations mapped via Telematics

Journeys
Classify routes & create duty cycles with stops and total distance

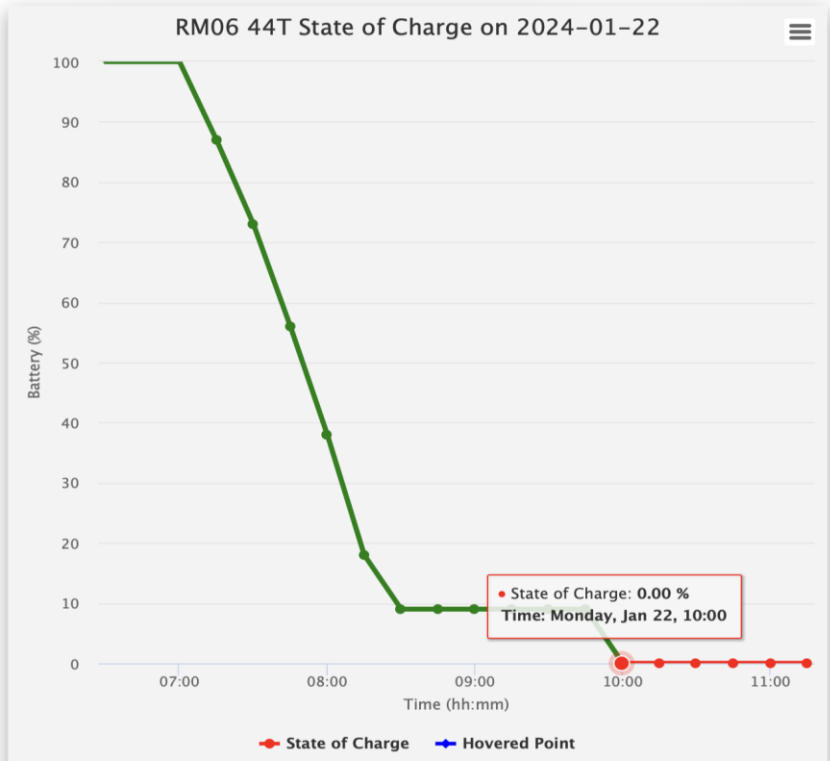


Duty cycle Analysis – Motorway Route

- Total dutycycle distance - 164 miles
- Weather condition – Harsh
- Tractor 6x2 44t Single-deck: Dutycycle incomplete, requires additional charge or bigger battery
- Tractor 6x2 44t Double-deck: Dutycycle incomplete, requires additional charge or bigger battery

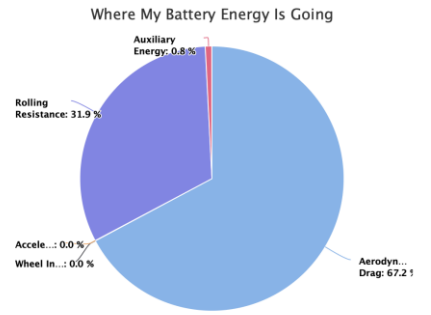


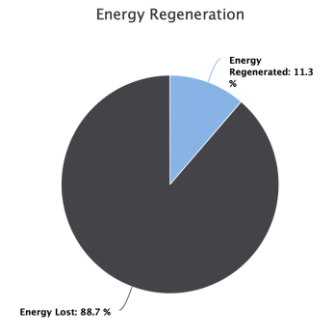
Single-deck

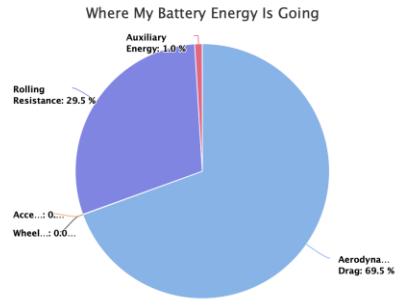


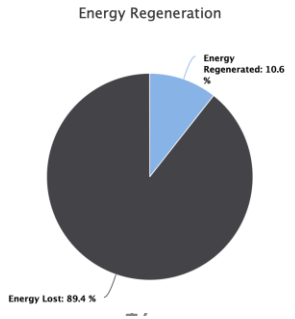
Double-deck

Motorway Route







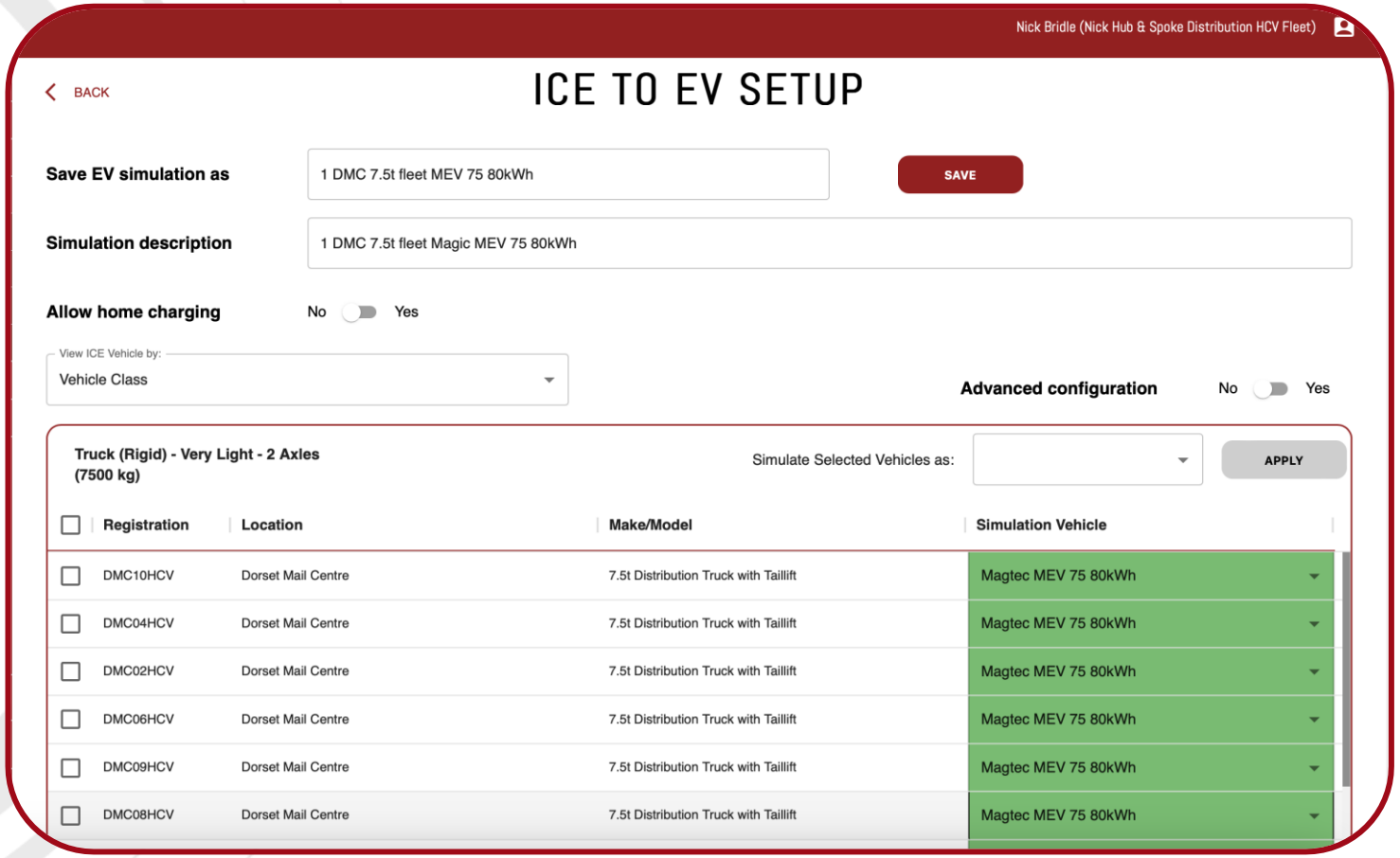


ICE to EV Selection

Use ZERO to **choose the best EVs for your specific operation**. Make sure EVs can do the work required, but don't have overly sized batteries causing unnecessary costs.

Analyse the performance of any commercial EV in any fleet operation by accessing a validated database of electric vehicles.

ZERO provides **real-world EV performance insights** considering specific vehicle configurations, modifications, fleet operations, driver behaviour, road conditions, weather, vehicle payloads, and auxiliary power consumption (e.g., refrigeration units and tail lifts).

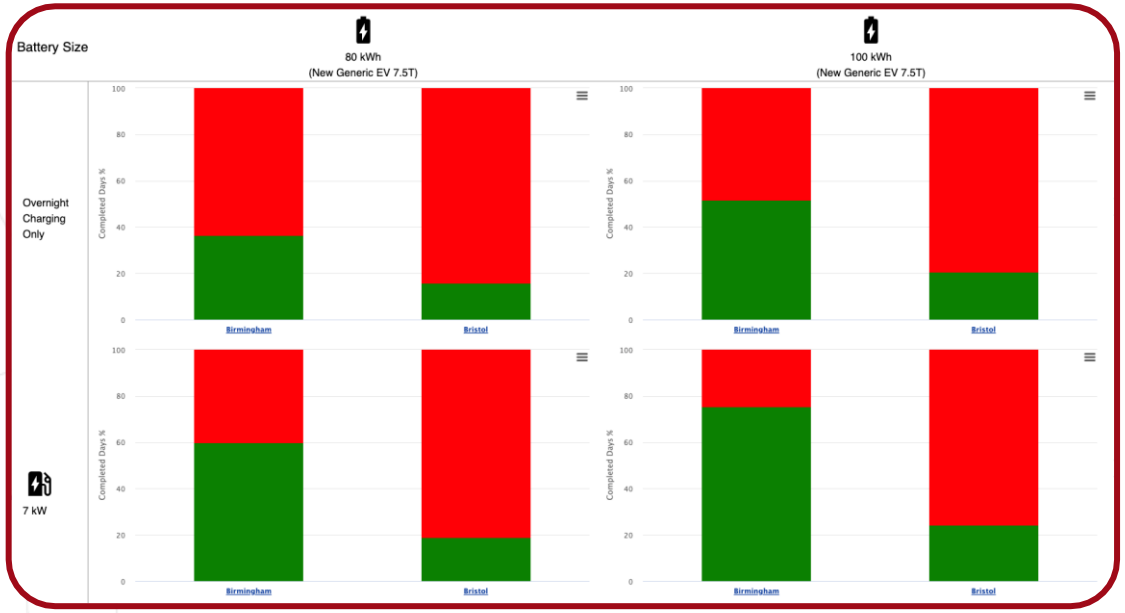


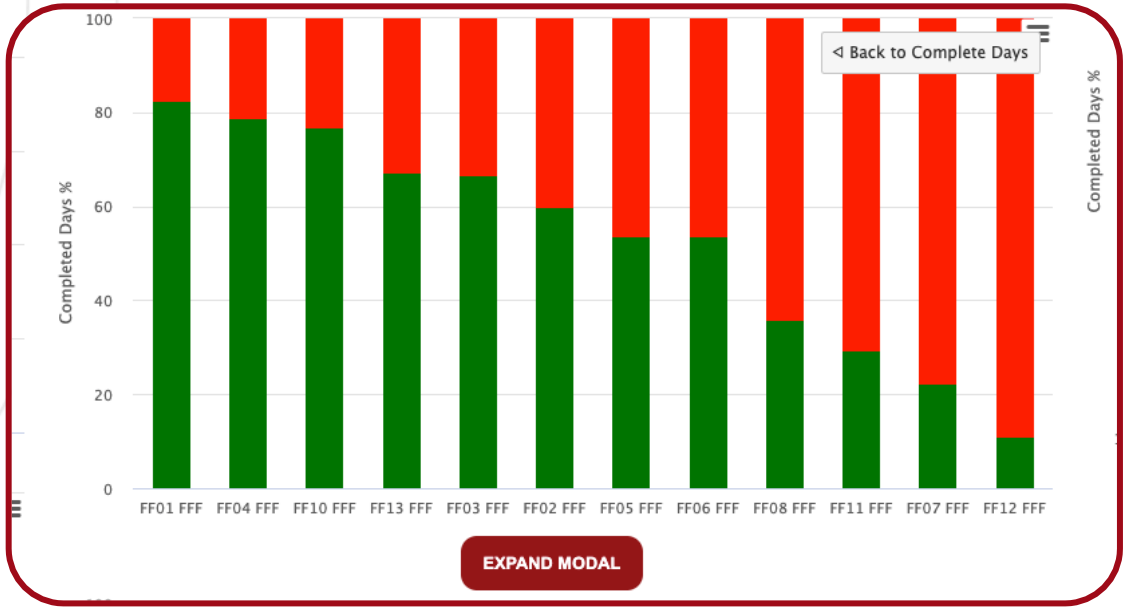
Simulation of Different Battery and Charging scenarios

Understand required battery and charger combinations

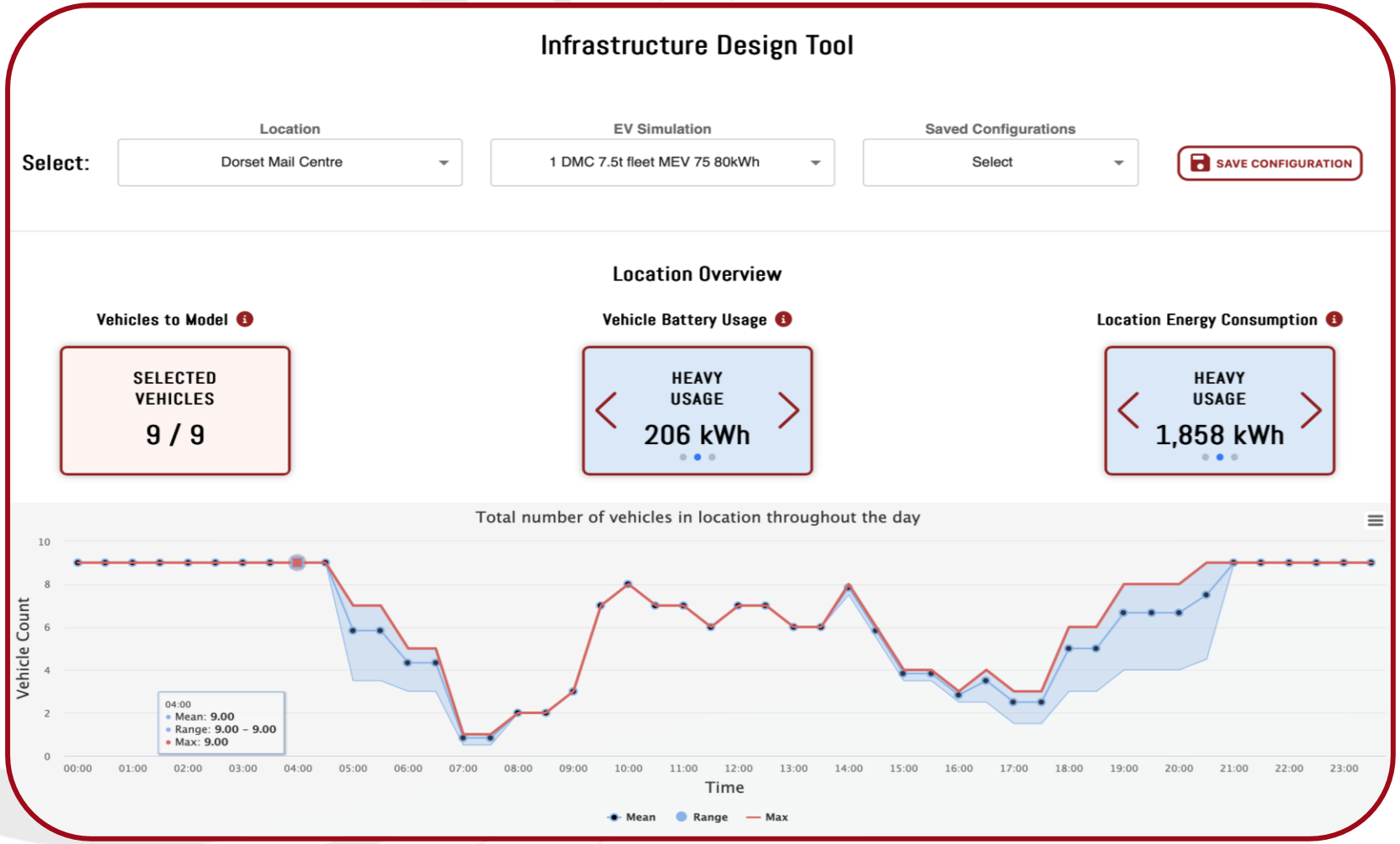
See which vehicles and routes can be electrified today

Future planning for transition as battery and charging technology improves



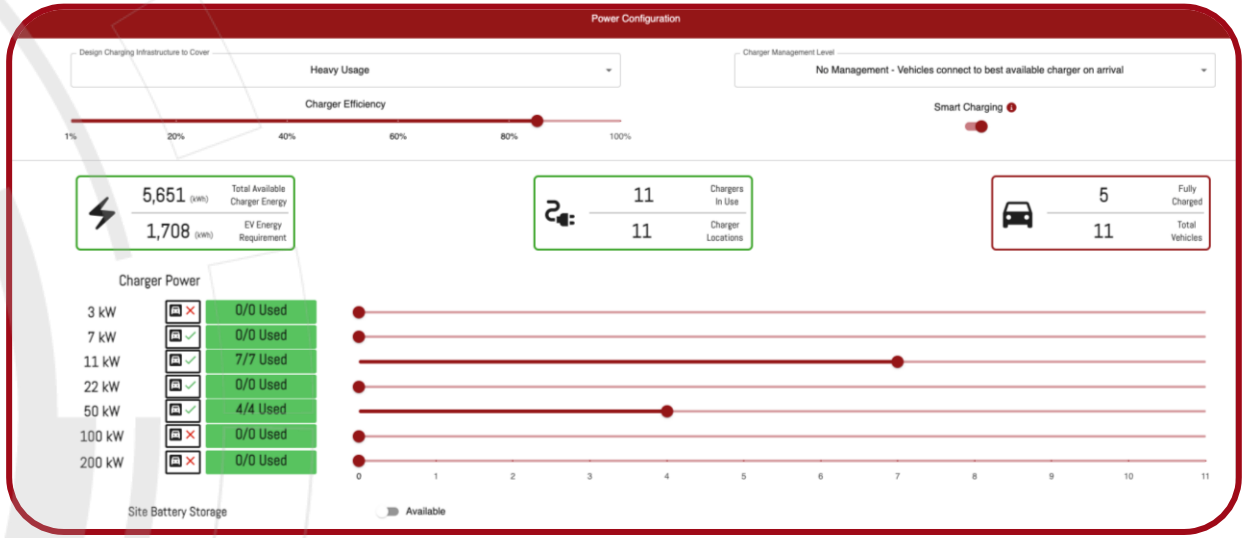


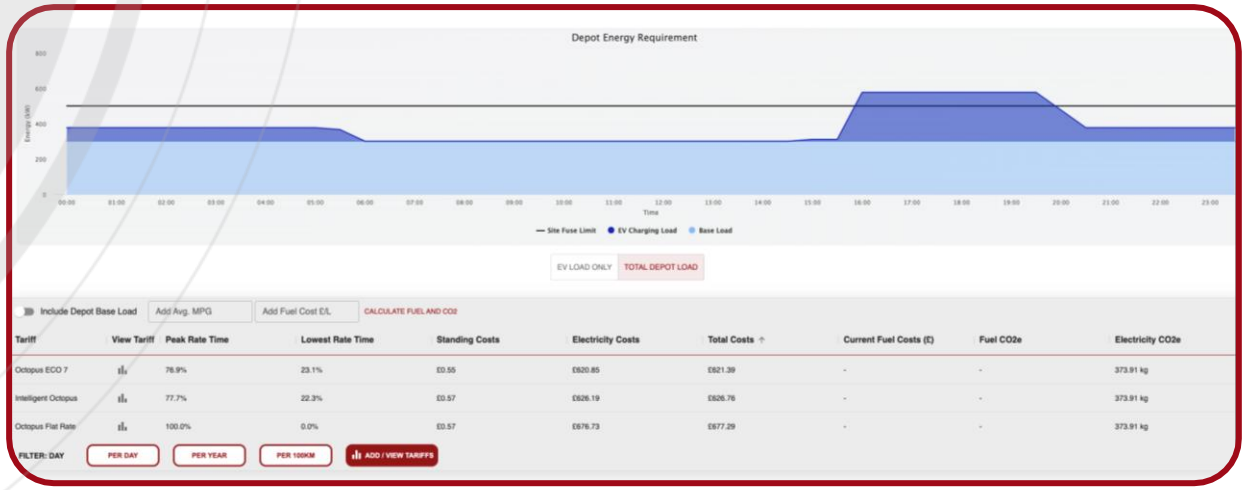
Infrastructure Design – Depot Charging



Infrastructure Design – Depot Charging

- ✓ Design infrastructure to support charging requirements
- ✓ Analyse projected electrical load throughout the day
- ✓ Find the optimum tariff for your unique charging profile



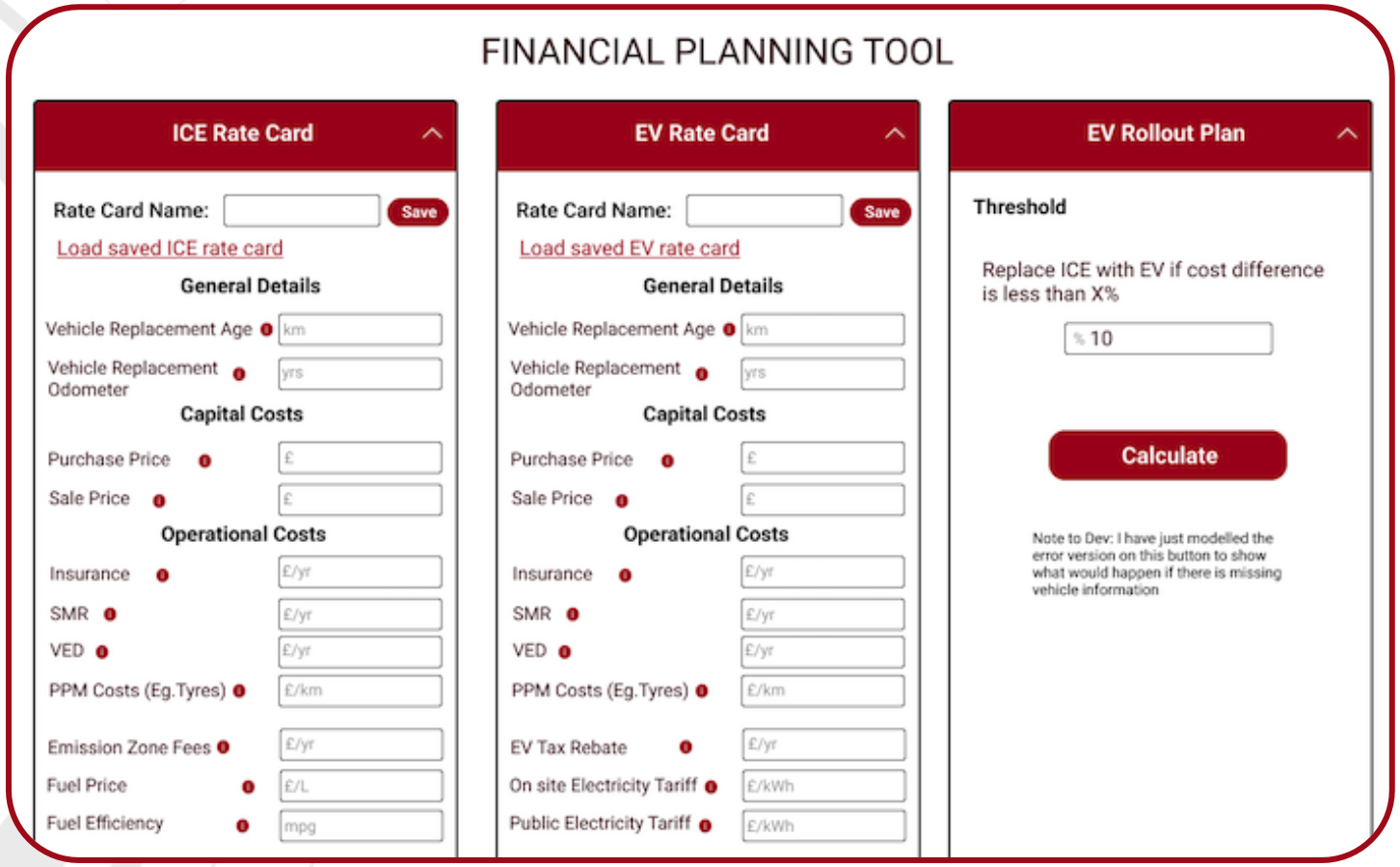


Financial Planning Tool

TCO Cost Analysis

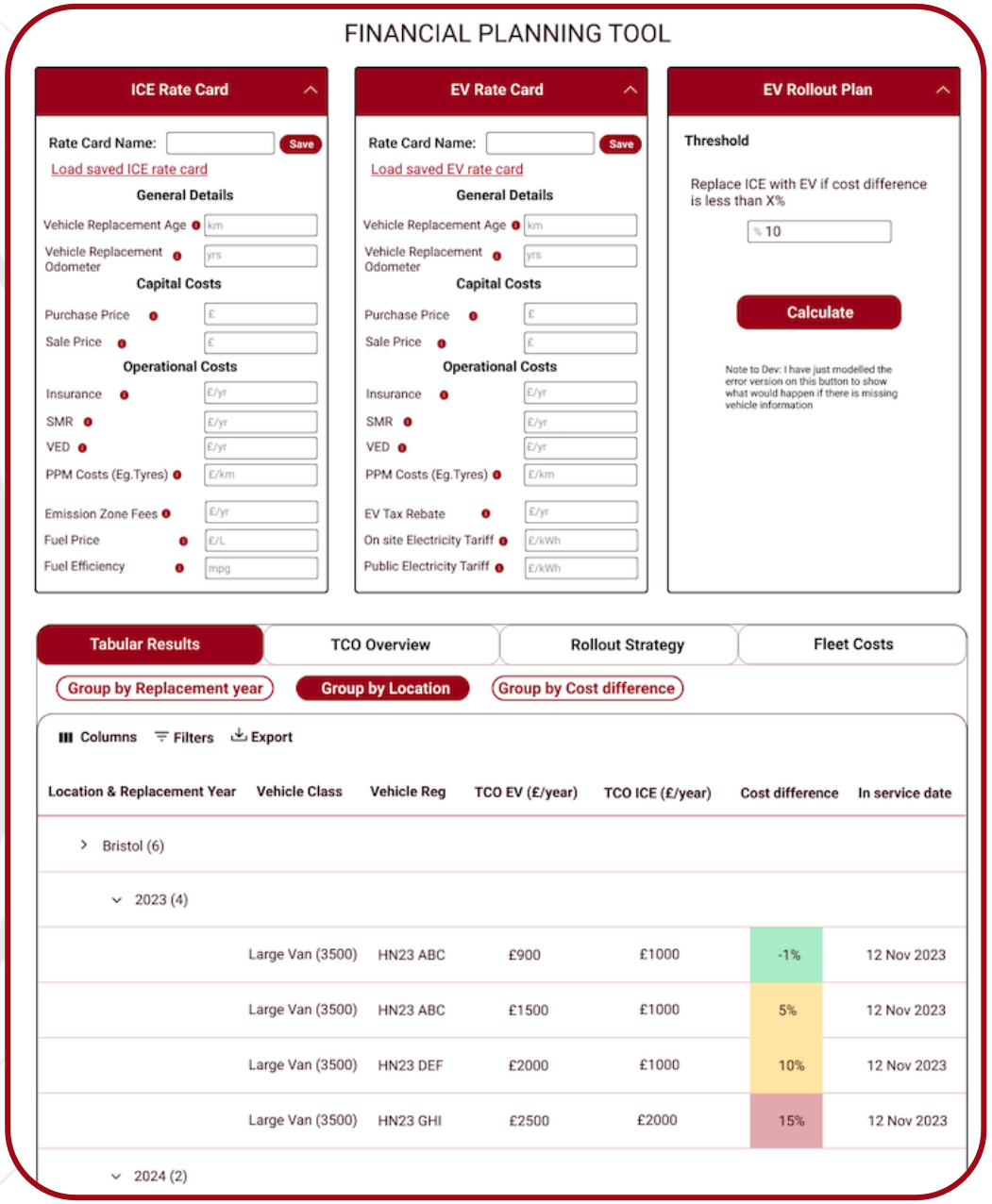
Total Cost of Ownership (TCO)

(Rate Cards ICE vs BEV)

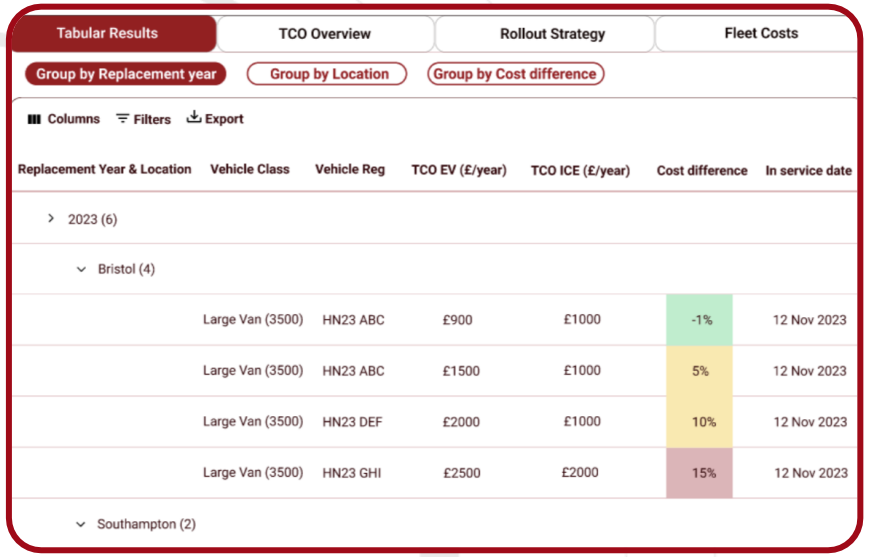


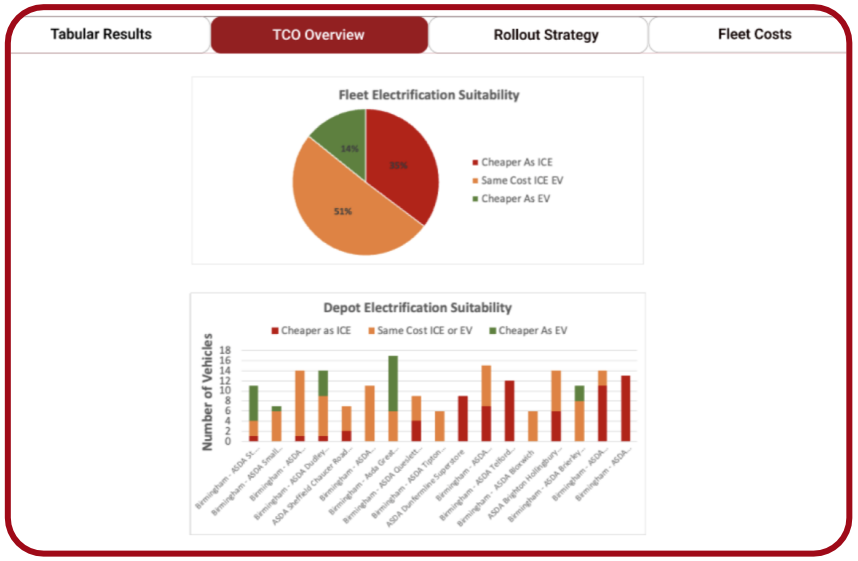
TCO Cost Analysis

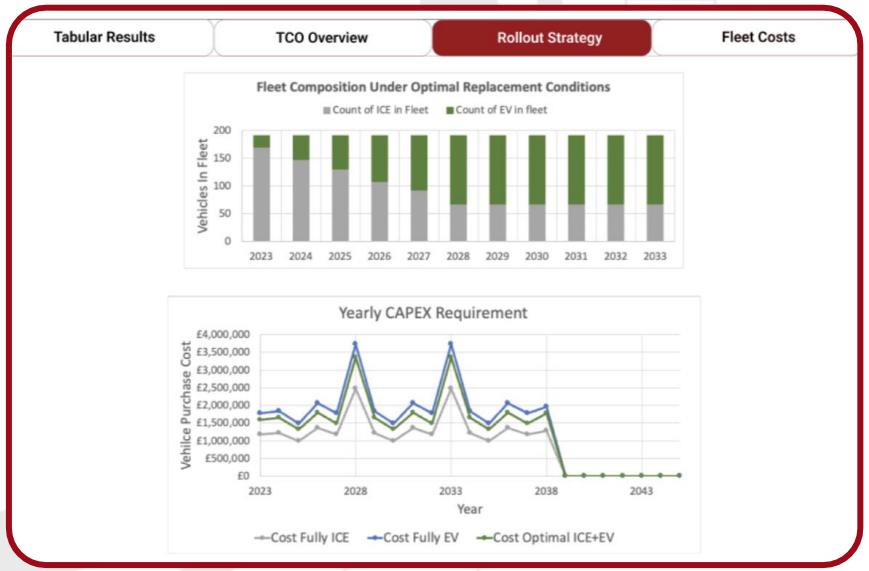
Fleet transition opportunity grouped by location, replacement year inc. costs difference

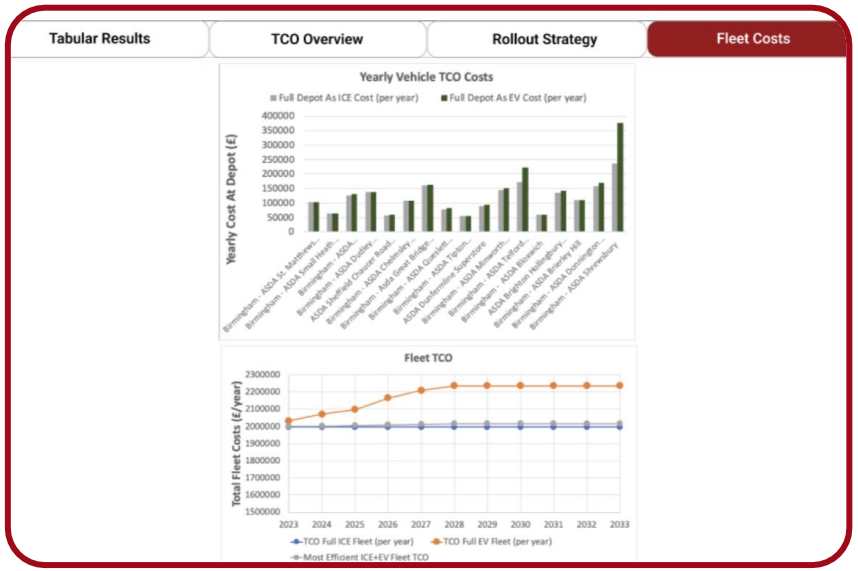


Financial Planning Tool



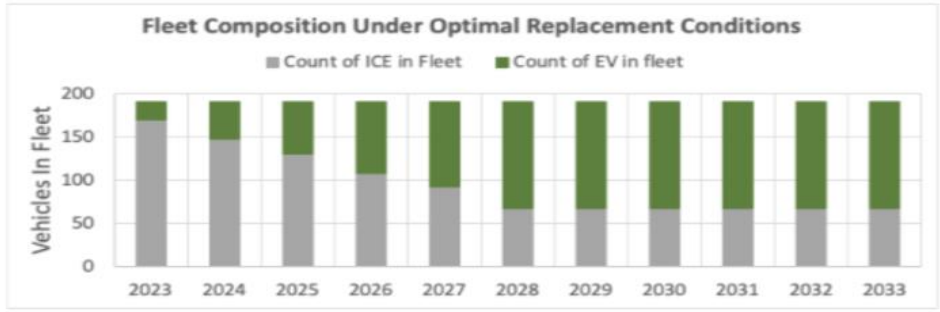


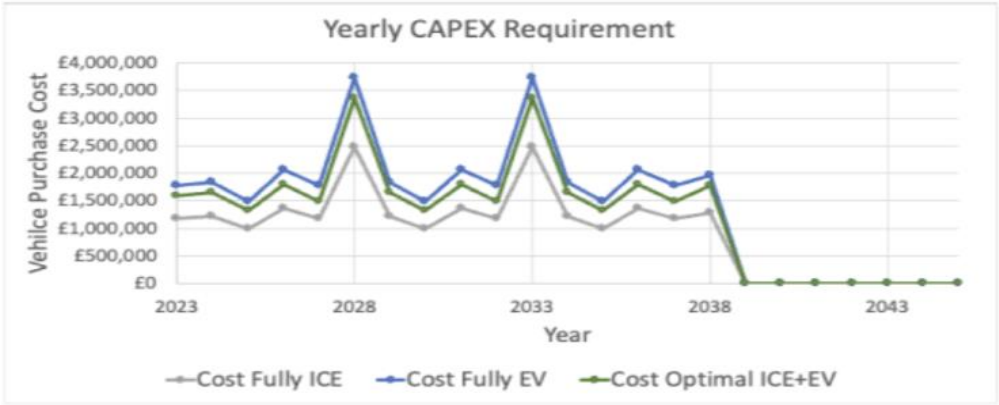




Fleet Decarbonisation Plan - Operational Cost Baseline

Tabular Results | TCO Overview | Rollout Strategy | Fleet Costs





Fleet Decarbonisation Plan – Operational Cost Baseline by Vehicle & Type

- ✓ Identify asset replacement dates by year
- ✓ Visualisation of assets for review
- ✓ Capex reflects new Alternative Fuelled vehicle costs

Class	Lifecycle	Depot	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Car 1	3		£15,000			£25,000			£30,000			£30,000			£30,000			£30,000
Car 2	3		£18,000				£25,000			£35,000			£35,000			£35,000		
Car 3	3		£20,000					£30,000			£35,000			£35,000			£35,000	
Car 4	3		£25,000					£35,000			£40,000			£40,000			£40,000	
CDV 1	4			£15,000				£35,000				£35,000				£35,000		
CDV 2	4			£18,000					£35,000				£35,000				£35,000	
CDV 3	4			£20,000						£35,000				£35,000				£35,000
CDV 4	4			£25,000							£35,000				£35,000			
MPV 1	4				£20,000	£20,000			£42,000				£42,000				£42,000	
MPV 2	4				£22,000					£42,000				£42,000				£42,000
MPV 3	4				£20,000						£42,000				£42,000			
MPV 4	4				£30,000							£42,000				£42,000		
LPV 1	4					£30,000				£70,000				£70,000				£70,000
LPV 2	4						£70,000				£70,000				£70,000			
LPV 3	4							£70,000				£70,000				£70,000		
LPV 4	4								£70,000				£70,000				£70,000	
7.5t truck 1	6			£50,000						£100,000						£100,000		
7.5t truck 2	6			£55,000							£100,000						£100,000	
7.5t truck 3	6			£60,000								£100,000						£100,000
7.5t truck 4	6			£70,000		£100,000							£100,000					
MU 1	6					£125,000						£250,000						£250,000
MU 2	6						£250,000						£250,000					
MU 3	6							£250,000						£250,000				
MU 4	6								£250,000						£250,000			
Trailer 1	8						£40,000								£45,000			
Trailer 2	8						£40,000								£45,000			
Trailer 3	8							£40,000								£45,000		
Trailer 4	8							£40,000								£45,000		
Total replaced			4	8	4	8	4	8	8	4	4	8	4	4	8	12	4	4
Year			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Capex by year			£78,000.00	£313,000	£92,000	£300,000	£425,000	£500,000	£427,000	£282,000	£322,000	£527,000	£532,000	£472,000	£517,000	£372,000	£322,000	£527,000

Questions

Contact

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

Nick Bridle
Customer Success Manager
Email: nick.bridle@dynamon.co.uk
Tel: +44 (0) 7702 676816

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