+ Introduction to Zenobē -

ZENOBĒ

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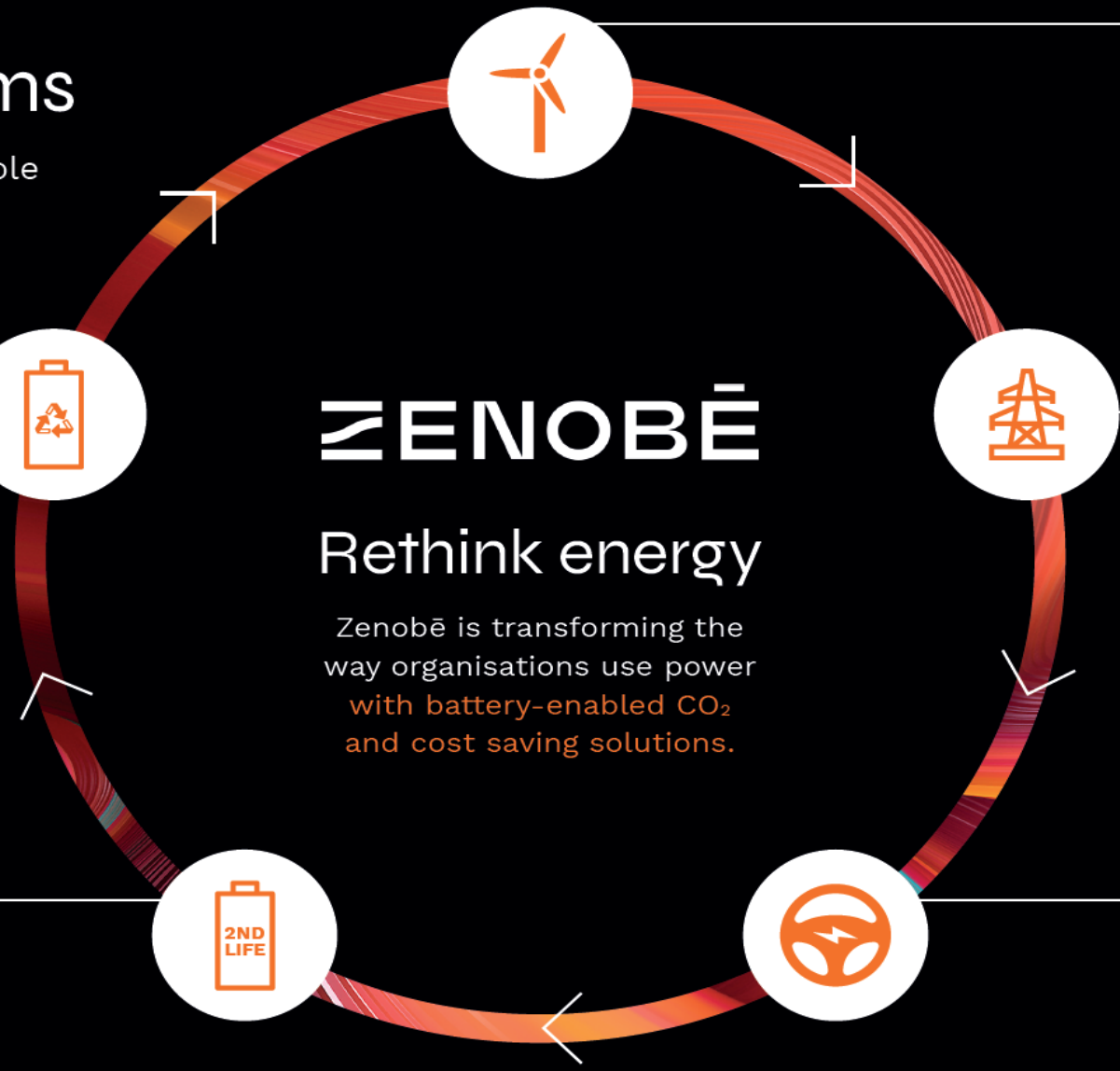
The circular economy of battery systems

Making clean power accessible



ZENOBĒ

Rethink energy

Zenobē is transforming the way organisations use power with battery-enabled CO_2 and cost saving solutions.

1. Renew

Batteries store clean power from a limitless supply of clean, renewable power.

- Get more from wind and sun power
- Ideal for large businesses with on site renewables

2. Recharge

Connected to the grid, our batteries circulate renewable power.

- Tackling challenges to the grid from growth in renewables
- Avoiding expensive grid upgrades
- Frequency and demand balancing
- Software to optimise in real-time
- In partnership with network operators

3. Reduce

We build and manage battery systems for vehicle fleets.

- For private and public sector vehicle fleets
- Reducing costs, CO_2 and air pollution
- Full turn-key financed solution
- Battery on the vehicles and depot
- Charging infrastructure and software

4. Reuse

Clean remote power with second life batteries.

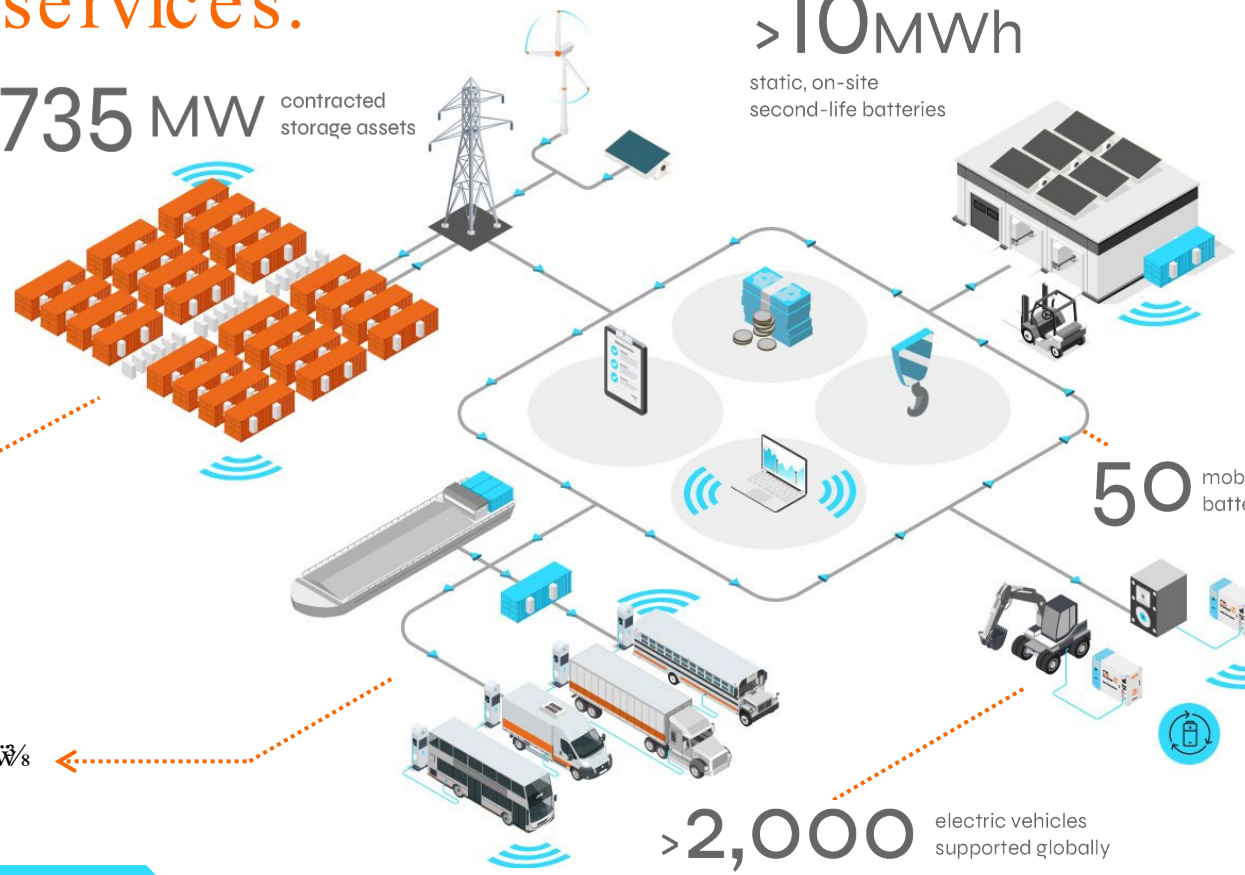
- Refurbish batteries after they complete their first life
- Clean power for remote locations
- Replacing polluting diesel generators

5. Recycle

The majority of battery materials recycled.

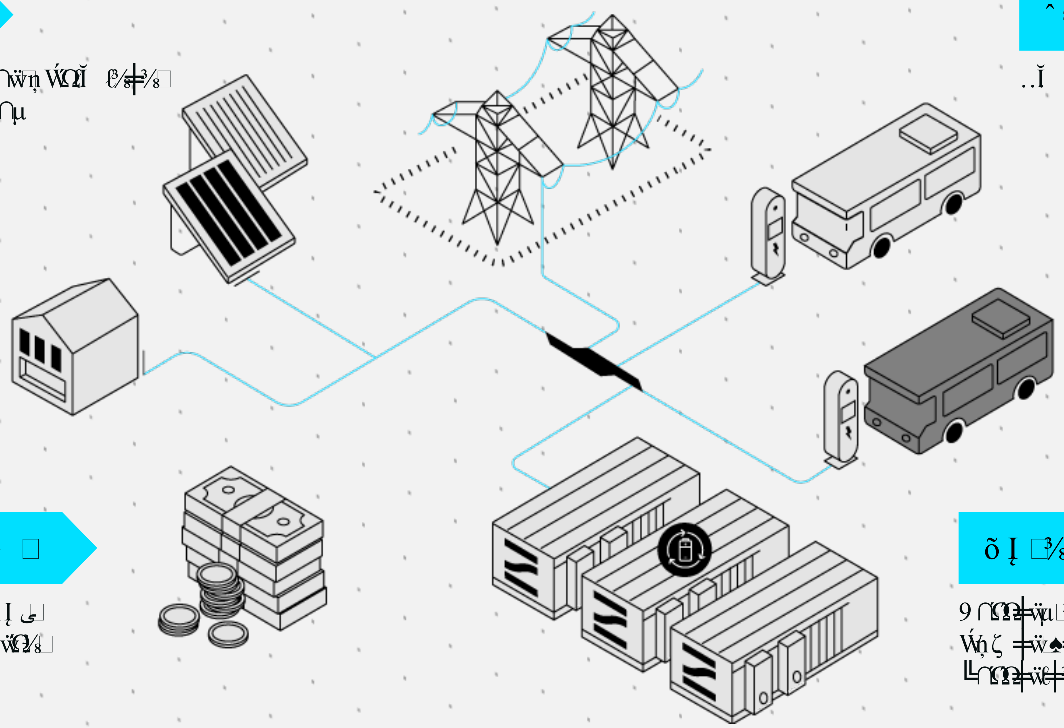
- To be used in the next generation of battery manufacturing
- Closing the loop of the circular economy

Zenobē designs, finances, builds and operates battery-based services.



+ Analytics & software-

Maximising power across all assets



Electric fleets

A proven route to zero emissions

Components of fleet electrification as a service

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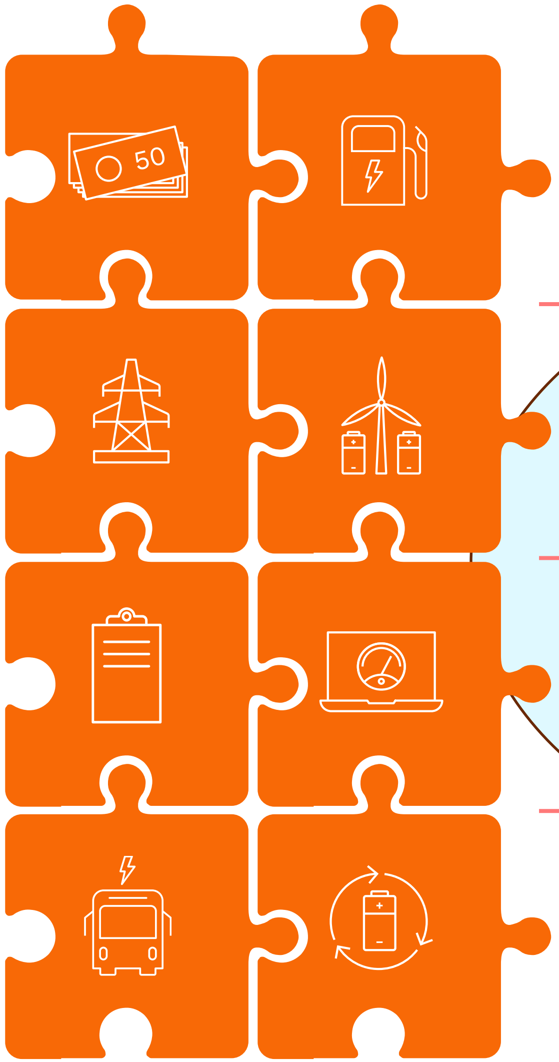

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Operating a bus fleet

What happens at the wheel ?	What happens on the road ?	What happens at the depot ?

Operating a bus fleet : Turning data into insights

[illegible]

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What happens at the wheel ?

- [illegible]
- [illegible]
- [illegible]

What happens on the road ?

- [illegible]
- [illegible]
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- [illegible]

What happens at the depot ?

- [illegible]
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Vehicles (brand agnostic)

List of vehicles

Vehicle ID

Vehicle ID	SoH%	total energy used	total dis. driven	AVG DoD	Efficiency	min SoC%	warranty alerts	go to vehicle
3417	92	6,498 kWh	2,815 mi	59	2.29 kWh / mi	11	0	>
1517	90	3,204 kWh	2,436 mi	80	1.32 kWh / mi	3	2	>
3419	92	6,648 kWh	2,698 mi	71	2.48 kWh / mi	5	2	>
3414	92	5,982 kWh	2,654 mi	59	2.28 kWh / mi	15	0	>
3412	92	5,973 kWh	2,797 mi	55	2.16 kWh / mi	28	0	>
3424	92	5,881 kWh	2,687 mi	55	2.2 kWh / mi	23	0	>
1532	90	4,970 kWh	3,169 mi	87	1.57 kWh / mi	6	1	>
3401	92	6,160 kWh	2,784 mi	57	2.23 kWh / mi	12	0	>

The data collected will give you detailed insights in every combination of vehicle, driver, route
Zenobē software & data platform supports you in visualizing & optimizing

KWH PER KILOMETER

List of drivers

Search

Driver ID	Score	Distance driven	Energy used	Efficiency	Harsh brake rate	Harsh acc. rate	Regen. rate	Driver view
ab-#00001EB4BF4C	47.79	575.7 mi	860.32 kWh	1.58 kWh / mi	7.73	7.62	0.93 kWh / mi	>
ab-#00001DBBEFD6	49.02	419.65 mi	565.51 kWh	1.26 kWh / mi	7.41	7.6	0.94 kWh / mi	>
ab-#00001DBB8EEC	45.54	329.12 mi	514.33 kWh	1.62 kWh / mi	7.69	8.26	0.87 kWh / mi	>
ab-#00001AE679FA	45.99	313.08 mi	520.23 kWh	1.56 kWh / mi	7.92	7.9	1.11 kWh / mi	>
ab-#00001DBB135C	51.78	301.63 mi	452.22 kWh	1.51 kWh / mi	7.1	7.18	0.72 kWh / mi	>
ab-#00001C37431C	50.83	301.5 mi	419.92 kWh	1.43 kWh / mi	7.22	7.31	0.91 kWh / mi	>
ab-#00001D5F105E	52.08	298.88 mi	460.11 kWh	1.56 kWh / mi	6.99	7.21	0.87 kWh / mi	>
ab-#000018D63515	45.41	293.98 mi	464.75 kWh	1.57 kWh / mi	7.72	8.26	0.86 kWh / mi	>

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KWH PER KILOMETER

List of routes

Search by route ID

route	energy used	distance driven	efficiency	regeneration rate	speed	go to route view
3S	9 kWh	6 km	1.33 kWh / km **(1.79 - 1.37)**	0.6 kWh / km **(0.60 - 0.60)**	18 km / h **(18 - 19)**	>
41	352 kWh	365 km	0.99 kWh / km **(1.23 - 1.47)**	0.44 kWh / km **(0.44 - 0.44)**	36 km / h **(34 - 39)**	>
5	1,398 kWh	1,234 km	1.12 kWh / km **(0.71 - 2.13)**	0.5 kWh / km **(0.50 - 0.50)**	24 km / h **(18 - 33)**	>
50	100 kWh	90 km	1.12 kWh / km **(1.54 - 1.12)**	0.42 kWh / km **(0.42 - 0.42)**	26 km / h **(26 - 26)**	>
51	513 kWh	497 km	1.03 kWh / km **(1.04 - 1.69)**	0.52 kWh / km **(0.52 - 0.52)**	25 km / h **(21 - 33)**	>
52	396 kWh	359 km	1.1 kWh / km **(1.30 - 1.53)**	0.6 kWh / km **(0.60 - 0.60)**	25 km / h **(21 - 28)**	>
53	165 kWh	132 km	1.25 kWh / km **(1.50 - 1.64)**	0.58 kWh / km **(0.58 - 0.58)**	25 km / h **(18 - 32)**	>
54	249 kWh	197 km	1.27 kWh / km **(1.47 - 1.72)**	0.65 kWh / km **(0.65 - 0.65)**	25 km / h **(20 - 28)**	>

The data collected will give you detailed insights in every combination of vehicle, driver, route
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Driver performance

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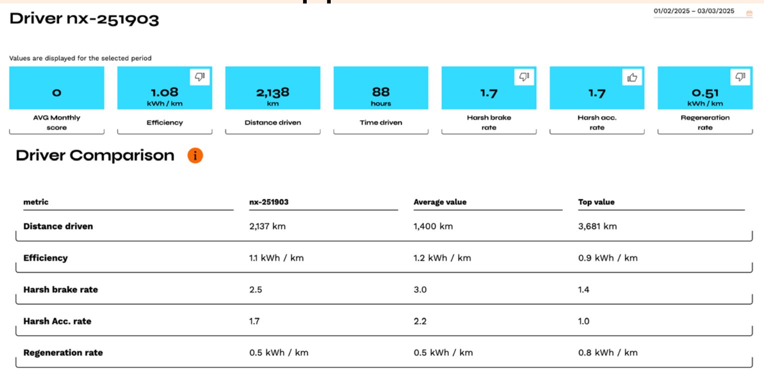
Driver nx-251903

01/02/2025 – 03/03/2025

Values are displayed for the selected period

AVG Monthly score	Efficiency	Distance driven	Time driven	Harsh brake rate	Harsh acc. rate	Regeneration rate
0	1.08 kWh / km	2,138 km	88 hours	1.7	1.7	0.51 kWh / km

Driver Comparison

metric	nx-251903	Average value	Top value
Distance driven	2,137 km	1,400 km	3,681 km
Efficiency	1.1 kWh / km	1.2 kWh / km	0.9 kWh / km
Harsh brake rate	2.5	3.0	1.4
Harsh Acc. rate	1.7	2.2	1.0
Regeneration rate	0.5 kWh / km	0.5 kWh / km	0.8 kWh / km

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Grade	A	B	C	D	E	F	G
March	119	82	100	1	10	43	45
April	160	91	50	5	26	44	23
May	206	70	27	15	35	33	12
June	241	48	21	25	34	22	7
July	265	34	23	29	28	14	4
August	282	28	26	28	21	9	3
September	296	27	27	24	15	6	2
October	310	27	25	19	10	4	2
November	324	26	22	14	7	3	2
December	337	24	18	10	5	2	2

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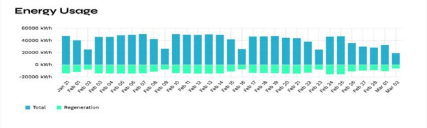
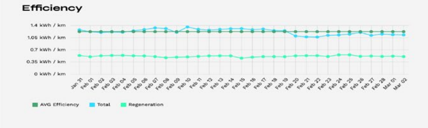
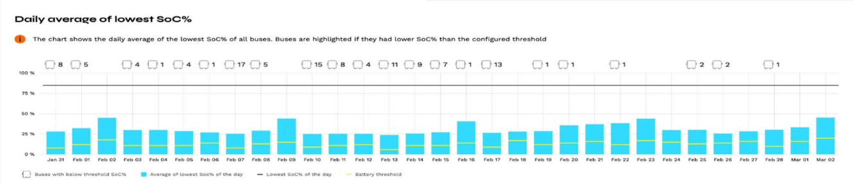
Driver performance







Driver ID	Score	Distance driven	Energy used	Efficiency	Harsh brake rate	Harsh acc. rate	Regen. rate
nx-102560	0	2,005.78 km	1,935.27 kWh	0.96 kWh / km	1.48	1.01	0.31 kWh / km
nx-251201	0	2,111.9 km	2,083.82 kWh	1 kWh / km	1.83	1.39	0.49 kWh / km
nx-125171	0	2,048.28 km	1,999.43 kWh	0.97 kWh / km	2.41	1.59	0.46 kWh / km
nx-251903	0	2,279.04 km	2,412.76 kWh	1.07 kWh / km	2.47	1.71	0.51 kWh / km
nx-101065	0	2,088.55 km	2,294.96 kWh	1.15 kWh / km	2.55	1.73	0.56 kWh / km
nx-250000	0	2,586.89 km	2,805.03 kWh	1.12 kWh / km	2.77	1.88	0.5 kWh / km
nx-127357	0	3,214.26 km	3,469.39 kWh	1.1 kWh / km	2.53	1.89	0.46 kWh / km

KWH PER KILOMETER

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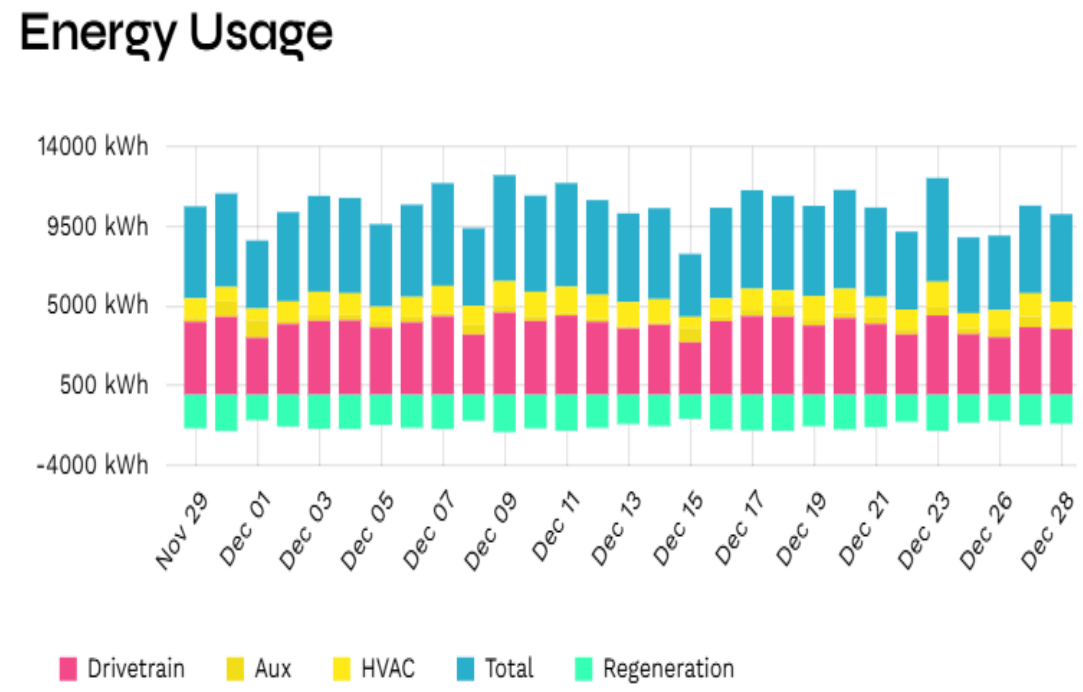
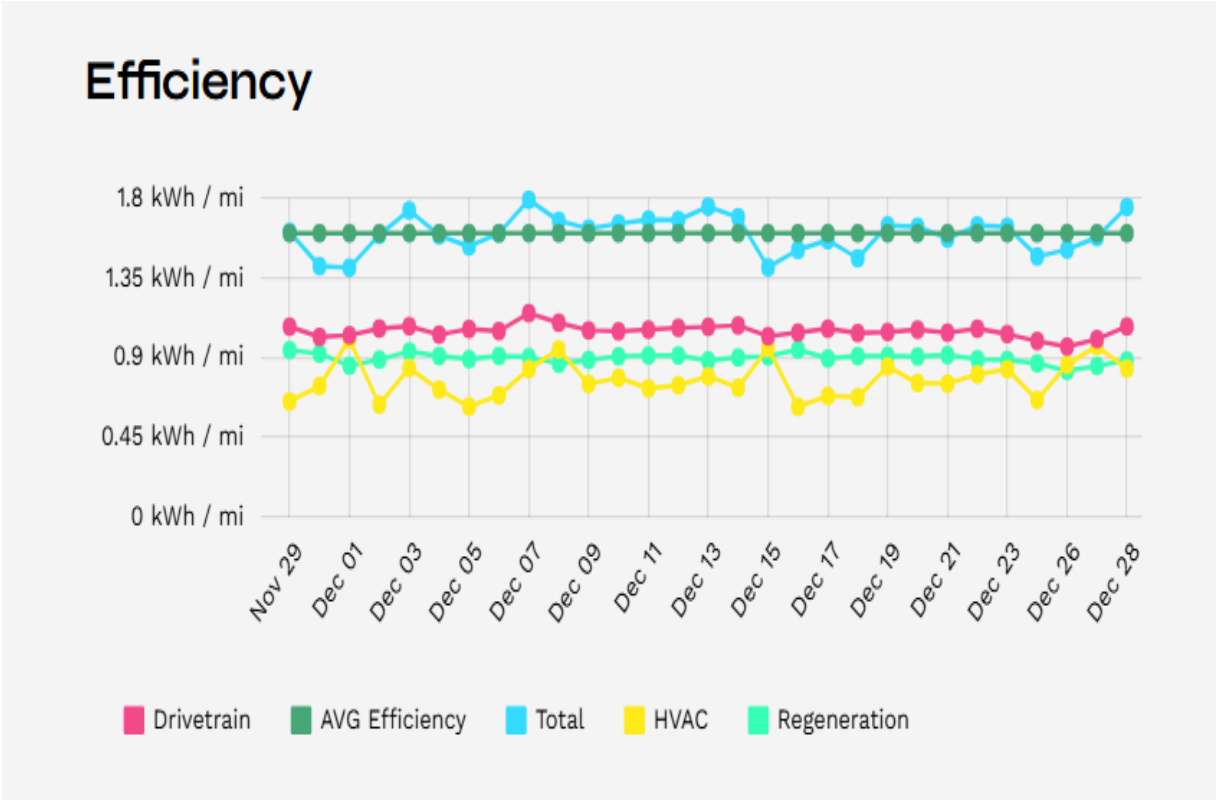
KWH PER KILOMETER
Over different brands





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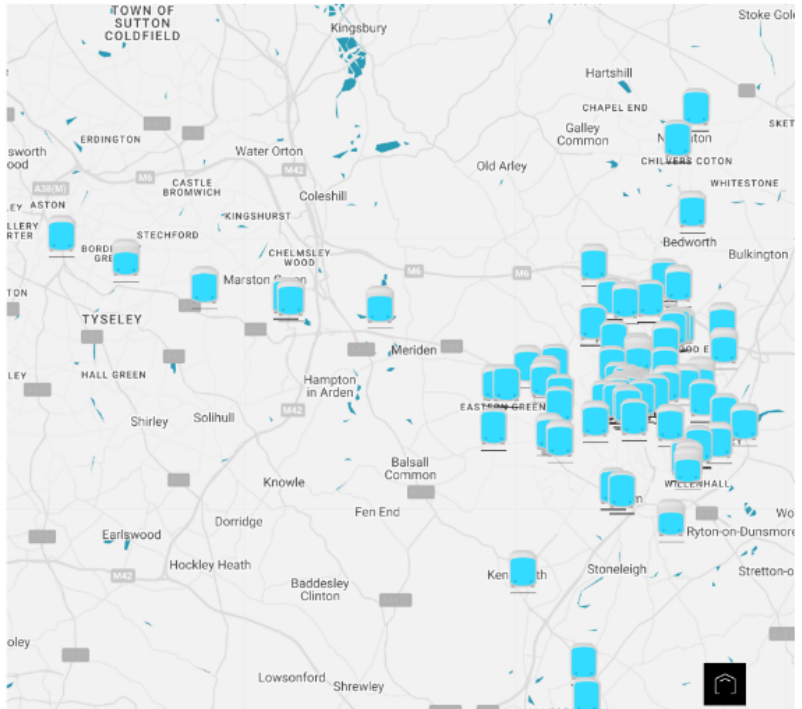

Vehicle ID	SoC%	Charger ID	Energy del	Temp
E028	86%	N/A	N/A	10 °C
E118	100%	N/A	N/A	8 °C
E038	89%	N/A	N/A	7 °C
E115	92%	N/A	N/A	8 °C
E052	99%	N/A	N/A	9 °C
E124	99%	N/A	N/A	10 °C
E103	90%	N/A	N/A	9 °C

Data insight as a whole

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Battery SoH – In flight

Understanding how batteries perform and their state of health (remaining capacity) is key to utilising their full potential and extracting maximum value over their lifetime.

Battery Health Monitoring	Understand state of health (remaining capacity) of EV batteries in service
Battery Degradation Forecasting	Predict future degradation of batteries based on battery SoH, historical degradation rates and fleet operation forecasts

Capability to effectively plan schedules and fleet operations into the future by considering the reducing battery capacity and vehicle range over time.

Fleet management at Zenobe: Data-Powered Intelligence

Maximizing your Efficiency and TCO through Advanced Data

Our Approach

Intelligent Forecasting
Predictive analytics for accurate consumption patterns, demand forecasting across time horizons and battery degradation curves

Real-Time Optimization "Smart charging"
Dynamic charging schedules tailored for each depot unique electrical systems, energy tariffs, local grid constraint, parking layout and restrictions

Automated diagnosis
AI-powered detection and diagnosis of charging issues, enabling rapid response and improved uptime through predictive maintenance

Business Impact

For Fleet Managers

- Smart prioritization ensuring critical vehicles are always ready for service
- Reduction of battery replacement costs

For Finance Teams

- Reduced electricity costs and TCO through smart charging
- New revenue stream from providing flexibility services to the network

For Operations Teams

- Real-time visibility of charging status and early issue detection

Running a depot safely and efficiently

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[illegible]

[illegible]

[illegible]

[illegible]

What happens when the bus arrives

- [illegible]
- [illegible]
- [illegible]
- [illegible]

What happens during the charging

- [illegible]
- [illegible]
- [illegible]
- [illegible]

What happens when …

- [illegible]
- [illegible]
- [illegible]

Electric fleet Operation

- end to end monitoring across all assets and brands
- turning data into insight
- minimize the TCO over the full lifetime

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