



Solution Overview

P.D. McLaren



Executive Summary

BetterFleet is an advanced fleet management and optimization platform designed to enhance operational efficiency, reduce costs, and support the transition to sustainable mobility. Leveraging real-time monitoring, AI-driven insights, and advanced data analytics, BetterFleet empowers fleet operators to streamline operations, maximize asset utilization, and improve overall performance. The platform is scalable and customizable, supporting everything from pilot programs to enterprise-level deployments.

Overview

BetterFleet proposes a strategic partnership with P.D. McLaren to accelerate EV adoption across fleet, municipal, and commercial sectors by integrating our data-driven EV planning and management software. This collaboration enables P.D. McLaren to deliver a differentiated offering to customers combining EV hardware with proven software to drive customer value and unlock new revenue streams.

Partnership Vision

Together, P.D. McLaren and BetterFleet can lead the EV infrastructure market with an integrated hardware and software solution. This partnership supports rapid infrastructure deployment, energy management, and fleet electrification at scale.

Why BetterFleet

BetterFleet is a trusted EV fleet software platform used by leading operators. Our solutions include asset replacement forecasting, depot energy simulation, and real-time transition planning—helping clients lower costs, secure grants, and accelerate project timelines.

Commercial Model

The proposed model includes flexible licensing options and revenue-sharing structures. P.D. McLaren can earn referral fees or revenue for new per activated licenses, with additional incentives tied to charging deployments enabled through BetterFleet planning. Additionally, BetterFleet will provide and support P.D. McLaren with a volume driven discount for advisory services for BetterFleet Asset and BetterFleet Plan. These resources are to assist P.D. McLaren with services within their Fleet, Transit, State, Local, and Education sectors for government & private fleet contracting.



About BetterFleet

BetterFleet is a world-leading platform for fleet transition planning and management for transit and other complex (mixed) fleets. We have serviced over 200 transit and municipal fleets globally. Our significant internal software team has built a state of the art charge management system, fine tuned for transit operations through five years of research and development collaborations and grants.

The business was founded in 2016 in Australia with a mission to decarbonize transport. The company grew organically through major contract success and major R&D grants, entering the United States, Canada and Europe rapidly. The business is still 45% employee owned and operated with 100% of funding coming from impact investors, most recently Aligned Climate Capital, New York based impact investment company. Our directors include Jordan Ramer (former CEO and Founder of EV connect), Jamie Rubin (former COO of State of New York), and Brendan Bell (former director of strategy at Department of Energy).

Our values permeate every aspect of our operations and many customers point to our transparency and honesty as the thing they value most from dealing with us.



Clear & Transparent

We always call it like it is. We are honest to our customers and to each other. When putting forward documents, code or information of any sort we do not embellish, we get to the point and provide clear methodical answers to questions.



Eco Active

We are driven to improve the state of the environment in which we live. We are bound by a joint commitment to this goal and we are passionate about finding ways to achieve it in our projects and product.



Transformative

We strive to transform the industries we are in. We learn fast so we can come up with solutions that push beyond incremental change and deliver customer-focused solutions that deliver multiple improvements to our customers and communities.



Empathy for customers and each other

We put ourselves in the shoes of our customers when we deliver projects and products. We try to truly understand their problems so we can offer solutions that make a real difference in their business and personal lives.

We were also established as a research & development (R&D) focused entity with all additional capital and profits going into funding our significant R&D efforts and collaborations in the Charge Management domain. Most notably and recently we were awarded a grant of up to \$25M from the California Energy Commission to fund research and development in advanced charging for Fleets.



BetterFleet Platform

BetterFleet is a globally leading planning and charge management system (CMS) specifically designed for complex fleet operations. Through extensive collaboration with complex fleet operators worldwide, we have developed a comprehensive platform that simplifies the adoption and operation of zero-emission vehicles (ZEVs). Our platform comprises three core components: BetterFleet Asset, Plan, and Manage.

BetterFleet Asset

BetterFleet Asset is an advanced fleet optimization platform that empowers fleet and sustainability managers with data-driven tools for asset replacement and charging infrastructure planning. By automating complex forecasting and optimization processes, it enables seamless integration of fleet transition planning into standard business operations with minimal reliance on external support. The platform's five core functions—vehicle asset replacement forecasting, fit-for-purpose assessment, charging infrastructure optimization, automated data processing, and ongoing monitoring—ensure efficient, cost-effective, and sustainable fleet management.

BetterFleet Plan

BetterFleet Plan is designed to provide precise energy consumption calculations using over 50 variables, ensuring accurate modeling of various scenarios such as topography, schedules, routes, vehicles, loads, and weather conditions. This powerful tool allows operators to efficiently run multiple scenarios and swiftly update plans as new vehicles and technologies emerge. Additionally, BetterFleet Plan addresses the complexity of managing depot operations, especially with the added challenge of charging requirements. It simulates depot activities to identify potential issues related to charge times and electrical load distribution, ensuring that depot operations remain seamless and efficient. This is critical for optimizing space, time, and energy use in depots.

BetterFleet Manage

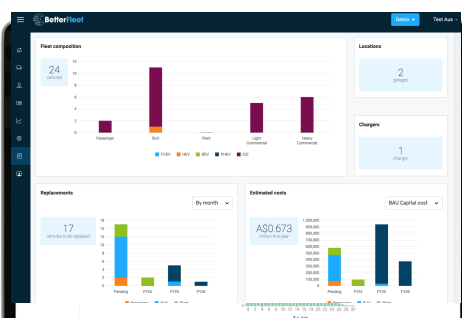
BetterFleet Manage is an integrated load and charge management system that dynamically monitors and adjusts site loads through smart metering. It ensures that vehicles are consistently charged without straining depot capacities. Features include detailed charge monitoring, smart charging, telematics integration for real-time vehicle status, and an intuitive interface that simplifies operations for non-technical users. BetterFleet Manage provides a unified dashboard offering real-time insights into charger status, vehicle energy usage, and depot operations, streamlining the entire management process.



Together, these modules provide a robust, adaptable solution for modern zero-emission fleet management, ensuring that fleet operators can make informed decisions, optimize their operations, and stay ahead in the rapidly evolving landscape of fleet electrification.

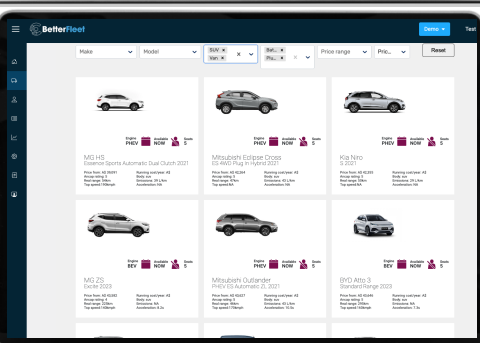
BetterFleet Asset

BetterFleet Asset is a comprehensive platform designed to support fleet and sustainability managers in making data-driven decisions about asset replacement and charging infrastructure planning. The platform simplifies and automates complex fleet forecasting and optimization processes, enabling organizations to integrate fleet transition planning into their standard business operations with minimal external support.



Baseline your vehicle information and gain new insights into your fleet

- Upload data from multiple systems
- Automated algorithms for data cleaning and validation
- Manage vehicles from within the system
- Set asset level defaults for faster onboarding
- Fleet dynamics report provides insights into operational, financial and environmental metrics



Add your preferred replacements or use our database of current and upcoming vehicles

- Extensive database of current & future vehicles - all asset types (light and heavy), fuel types and manufacturers
- Define approved vehicle lists by adding your own details of potential procurements and supplier / dealer preferences
- Run analysis of potential future vehicles to understand the best options from a financial, operational and environmental perspective

The screenshot displays the 'BetterFleet Asset' dashboard showing the 'Net present value - Summary' table. The table compares 'Business as usual' and 'Transition scenario' across various cost headings.

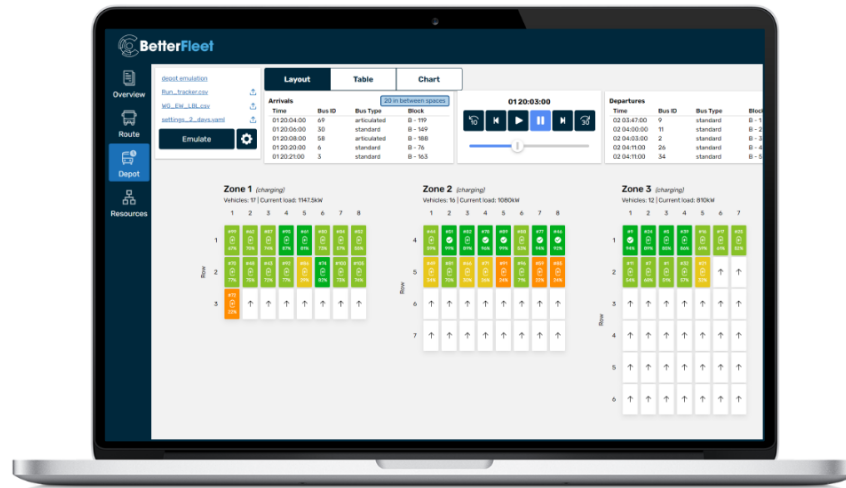
Cost heading	Business as usual	Transition scenario	Cost difference
Fleet capital cost	A\$ 4,477,002.69	A\$ 5,211,249.39	A\$ 734,246.70
Fleet residual value	A\$ 946,200.00	A\$ 802,094.00	A\$ 144,106.00
Charging infrastructure	A\$ 0.00	A\$ 210,300.00	A\$ 210,300.00
Total Capital cost	A\$ 5,423,202.69	A\$ 6,223,643.39	A\$ 800,440.70
Maintenance cost	A\$ 190,000.00	A\$ 188,733.44	A\$ 1,266.56

Create whole of fleet asset replacement forecasts and budgets

- Establish baseline settings for energy costs, indices, grid emission intensities, and vehicle default parameters
- Run whole of fleet forecasts using our powerful and unique algorithm
- Detailed planning and reporting on potential required budgets for transitioning under different scenarios



- Forecasts include infrastructure requirements and costs
- Downloadable reports to put together a successful business case for transition



BetterFleet Plan

BetterFleet Plan is a versatile and comprehensive module developed entirely in-house to meet the specific needs of bus and fixed-route fleets. Unlike systems that rely on manufacturer efficiency metrics, BetterFleet Plan utilizes over 50 variables to calculate energy consumption, ensuring precise and reliable data. This planning tool enables operators to run multiple scenarios with minimal effort, accurately modeling different topographies, schedules, routes, vehicles, loads, weather conditions, and more.

The flexibility of BetterFleet Plan ensures that as new vehicles and technologies are introduced to the market, the tool can be quickly and easily updated. It also supports the modeling of hypothetical vehicles, allowing operators to test future scenarios and assess the impact of emerging technologies on operations. For instance, if battery capacity were to increase significantly, BetterFleet Plan would seamlessly adapt, providing detailed insights into the implications of such a change.

Additionally, BetterFleet Plan addresses the often-overlooked challenge of depot management, particularly with the added complexity of vehicle charging requirements. Battery electric buses have unique movement, space, and time needs that can disrupt even the most meticulously crafted plans. The depot emulation capability allows users to simulate depot operations, identifying potential bottlenecks related to charge times and electrical load requirements per zone. This ensures that depot activities remain seamless and efficient.

By combining advanced route modeling with depot emulation, BetterFleet Plan enables fleet operators to proactively manage and optimize their operations. This robust and adaptable planning capability helps operators make informed decisions, optimize their fleet's



performance, and stay ahead in the rapidly evolving landscape of fleet management and electrification.

BetterFleet Manage

BetterFleet Manage is a comprehensive, system-wide charge and load management platform built to simplify electric fleet operations. It actively monitors site loads through smart metering and adjusts charger output in real time, ensuring vehicles are charged while depot operations continue without exceeding site capacity.



Key functionalities include:

- Real-time monitoring and remote control of chargers to support daily operations and reduce manual intervention.
- Smart charging with load management to optimize energy distribution and stay within infrastructure limits. This includes dynamic load management at the individual plug, circuit, panel, and site levels.
- Energy cost optimization, allowing fleets to schedule charging around time-of-use utility tariffs and demand charges.
- Integration with renewable energy systems and microgrids to align charging activity with available clean energy generation.
- Proactive incident management system to identify faults early and support fast resolution.
- Detailed reporting and data collection on charging sessions, energy usage, vehicle status, and battery performance metrics.
- Vehicle integration through telematics, enabling visibility of state of charge (SoC), odometer readings, and pre-conditioning support.
- Compatibility with third-party systems and major OEMs, including ABB, Zerova, and Heliox, for seamless integration across infrastructure.
- Tools to manage scheduled maintenance or charging interruptions, ensuring minimal disruption to operations.
- Built-in security features, including encryption of data in transit and at rest, to protect sensitive fleet and operational information.



BetterFleet Manage is built for scalability and day-to-day practicality, giving operators the control and visibility they need to manage growing electric fleets with confidence.



Our Relevant Experience

BetterFleet is a global leader in fleet electrification, dealing with large enterprise accounts and delivering high quality customer success and support.

A unique part of the BetterFleet offering is our planning tools. The following are installations of our BetterFleet planning platform in North America, most of which either already have or will move to some element of charge management.

Organization	Project	Scope	Depots/ Sites	Fleet size	Dates
King County Metro, WA	Interim Base (Depot) Electrification, Predictive Analysis, and Modelling	KCM required predictive energy modeling, in-depot simulation, and the ability to simulate in-depot charging ensuring that BEBs can meet their block assignments with the state of charge achieved by depot charging with a first in, first-out strategy. BetterFleet also recently deployed our CMS–BetterFleet Manage—at one of KCM’s depots for eight chargers, including both plug-in and pantograph dispensers.	8	1,540	2021- 2022
Fredericton Transit, NB	Alternative Propulsion Study	Developed a strategy for alternative propulsion fleet, including a rollout plan that identified at a high level the opportunity, strategy, optimal timing, and costs for Fredericton Transit to transition to a green fleet.	1	28	2021- 2022
Ann Arbor Area Transportation Authority, MI	Transit Bus Propulsion Study	Documented the existing situation and benefits, undertook an assessment of all propulsion technologies, route modeling, associated infrastructure planning, financial planning (capital and operations) and emissions modeling.	1	119	2021- 2022
Clark County, NV	Fleet Electrification Plan for the County’s Mixed Fleet	Utilized BetterFleet Plan predictive modeling and analysis to develop a fleet transition plan for the County’s mixed fleet, consisting of a wide range of light, medium, and heavy-duty vehicles, across County departments and fulfilling a variety of use cases.	77	1,815	2022- 2023
City of Port Moody, BC	Mixed Fleet Assessment and Strategy	Developed a fleet transition plan for the City of Port Moody’s mixed fleet to meet the community’s climate action goals and timelines.	8	135	2022- 2023
Southeast Michigan, MI	Identifying Optimal Locations for EV Charging Stations	BetterFleet developed an interactive map identifying how Southeast Michigan’s EV charger network will grow spatially and temporally under various EV uptake scenarios. Our mapping considers distribution networks, power infrastructure and prioritizing disadvantaged communities in EV charger rollout.	City of Detroit, Macomb, Oakland, and Wayne Counties	N/A	2022- 2023
SunTran, AZ	Zero- and Low-Emission Bus Fleet Sustainability Study	Developed an alternate propulsion technology fleet transition strategy that identified capital improvements required, a net carbon reduction strategy, provided a financing and purchasing strategy, and a comprehensive understanding of how this transition will affect Tucson in the future.	2	198	2022- 2023



Organization	Project	Scope	Depots/ Sites	Fleet size	Dates
Dean Transportation, MI	School Bus Fleet Electrification	Created a 'digital twin' of Dean Transportation's fleet in Lansing and Grand Rapids. Utilized the digital twin to address challenges related to electrifying their fleet and model new potential revenue streams so that Dean Transportation may lease its charging infrastructure to other fleet operators.	11	250	2022-2023
Los Alamos National Laboratories, NM	Mixed Fleet EV Transition Planning	Developed a fleet transition plan for Los Alamos National Laboratory in New Mexico, to help optimize their mixed vehicle fleet transition to zero emission propulsion by 2030.	25	1,774	2023
Asotin County, WA	Low-to-Zero-Emission Fleet Plan for Public Transit	Undertook predictive energy modeling for Asotin County's transit fleet. Developed cost and emissions forecasts and packaged all results together in the form of a Zero Emission Bus Transition Plan.	1	23	2023
Madison County Transit, IL	Zero-Emission Bus Transition Plan	Undertook a predictive energy model analysis to develop a transition plan to a zero-emission bus fleet for Madison County Transit. Developed multiple implementation scenarios to optimize costs, GHG savings, and other key performance indicators. Identified transition planning strategies for paratransit and other non-fixed-route operations.	1	152	2023
San Mateo County, CA	Mixed Fleet Electrification Study for 16 Departments	BetterFleet Plan's predictive modeling and analysis capabilities were utilized to explore the feasibility of converting San Mateo County's fleet to zero emissions. Developed customized fleet transition plans for each of the 16 county departments, considering specific vehicle needs, usage, facilities, and stakeholder requirements, that were then integrated into a comprehensive countywide sustainable transportation strategic plan and a meticulous infrastructure plan catering to both departmental and site-specific needs.	30	2,500	2023
Central Transit & Kittitas County Connector, WA	HopeSource Zero Emission Fleet Transition Plan	Undertook predictive energy modeling for HopeSource's transit fleets, including Central Transit and Kittitas County Connector, in Washington State. Developed cost and emissions forecasts and packaged all results together in the form of a Zero Emission Fleet Transition Plan.	1	12	2023
Del Norte County, CA	Zero-Emission Vehicle and Zero-Emission Bus Project Initiation Plan	The Del Norte Local Transportation Commission (DNLTC) engaged BetterFleet to develop a zero-emission vehicle and bus project initiation plan, reviewing fleet operations across Del Norte County, including Redwood Coast Transit, Yurok Tribe, and Crescent City. BetterFleet used its software for predictive modeling, creating tailored fleet transition plans and evaluating cost-optimized and technology leadership scenarios against a BAU scenario.	6	41	2023
Saskatoon, SK	Zero-Emission Vehicle	Developed a fleet transition plan for the City of Saskatoon's mixed fleet of light, medium, and heavy duty vehicles. Worked closely with the City on	41	800	2023



Organization	Project	Scope	Depots/ Sites	Fleet size	Dates
	Adoption Roadmap	evaluating the business case of a fleet transition, and provided a license to the City with insights on how to drill down into key cost measures.			
District of Saanich, BC	Fleet Transition Plan and Greening Strategy	Developed a fleet transition plan for the District of Saanich's mixed fleet of light, medium, and heavy duty vehicles, in concert with provincial climate initiatives and mandates.	13	300	2023
Durham Region Transit, ON	BetterFleet Plan Pilot Project	Durham Region Transit (DRT) initiated a pilot project for BetterFleet Plan, enabling DRT to conduct their own predictive ZEB modeling. BetterFleet set up DRT's data in the platform and trained their staff, ensuring accurate modeling based on local conditions. The pilot, involving key DRT stakeholders, is currently under evaluation for full rollout.		215	2023
JEA, FL	Multiple Fleet Transition Plans Operating in the JEA (Utility) Service Area	To kick off the process of evaluating fleet transition opportunities for multiple fleets in JEA's service area, BetterFleet developed a fleet transition plan for JEA's own mixed fleet.	7	669	2023
New York City Department of Sanitation, NY	Fleet Transition Plans for Two Facilities in the Bronx	Developing a zero emission fleet transition plan - using BetterFleet depot emulation to model fleet energy requirements, electric vehicle range, fuel efficiency and charging profiles for the NYC fleet.	48	5,000	2023
City of Detroit, MI	Comprehensive Fleet Transition Planning for City and Transit Fleets	BetterFleet was retained by the City to evaluate the fleet operations of DDOT – the local transit agency – as well as the 2,756 vehicles of mixed asset classes across the City's full suite of departments including but not limited to the police, fire, public works, general services, recreation, airport, and municipal parking fleets.	28	2,756	2023
Town of Carrboro, NC	Fleet Alternative Fuels Feasibility Analysis	Led all aspects of the Town's Fleet Alternative Fuels Feasibility Analysis, including the modeling of alternative (low- and zero-emission) propulsion vehicles and equipment across all asset classes, and delivered a framework to help guide the Town's actions towards fleet greening going forward.	6	103	2023
Town of Ajax, ON	Sustainable Green Fleet Strategy	Developed a fleet transition plan for the Town of Ajax's mixed fleet of light, medium, and heavy duty vehicles and equipment. A cost-optimized scenario focused on early actions was developed, alongside a technology leadership scenario focused on opportunities for a more transformative fleet transition.	9	252	2023
City & County of Honolulu Transit, HI	Route Modeling and Depot Emulation	BetterFleet assisted the Department of Transportation in planning its transition to zero-emission vehicles, addressing challenges such as limited overnight dwell times, long daily mileage, and surplus solar energy generation. Utilizing BetterFleet's sophisticated modeling capabilities,	2	325	2023



Organization	Project	Scope	Depots/ Sites	Fleet size	Dates
		an optimized on-route charging solution was determined.			
San Diego Unified School District, CA	Route Emulator Pilot	Prepared a strategy behind the transition to zero-emission school buses, and developed a fleet plan accordingly. Considered California Air Resources Board (CARB) mandates and incentives, and accounted for uncertainties regarding future student transportation (school bus) routes.	1	450	2023
Kern High School District, CA	Fleet Transition Strategic Planning	Developed a fleet transition plan for Kern High School District's school bus fleet and white fleet (mixed fleet). Considered CARB mandates and how best to maximize Kern's US EPA grant funding in the development of fleet transition pathways.	30	771	2023-2024
MTA Bridges & Tunnels, NY	Fleet Transition Plan	Developed fleet transition scenarios in BetterFleet Plan for inclusion in MTA's fleet strategy. Performed in-depth analysis of all modeling outputs and provided additional cost calculations to help strengthen the business case.	25	539	2023-2024
City of Brandon, MB	Fossil Fuel Reduction Fleet Study	Developed a fossil fuel reduction fleet study, identifying zero-emission vehicle transition opportunities through analysis of a cost-optimized (conservative) and a technology leadership (transformative) scenario. Complemented the analysis with the preparation of a strategic implementation plan.	17	302	2024
Valley Transit, WA	Zero Emission Bus Rollout Plan	Undertook predictive energy modeling for Valley Transit's operations. Developed cost and emissions forecasts and packaged all results together in the form of a Zero Emission Bus Rollout Plan.	1	18	2024



The following are installations of our charge management system and the third party integrations that they have involved.

Country	Organization	Depot	# of EVs	Full Fleet	# of Connectors	Charger Types	Vehicles	Third-Party Systems
United States	King County Metro	South Base	40	124	8	ABB, Heliox	New Flyer	HASTUS GeoTab Viriciti
United States	MBTA	North Cambridge	30	30	30	ABB (in construction)	New Flyer	HASTUS
UK	Go-Ahead Group	Orpington	25	50	Awaiting deployment	ZeroVA (Phihong), Jema Energy	Irizar	N/A
UK	Abellio	Battersea	43	148	24	Alpitronic (EnelX), ZeroVA	Caetano BYD Wrightbus	N/A
UK	Abellio	Twickenham	27	240	12	Alpitronic	BYD Wrightbus	N/A
UK	Transport for West Midlands	Multiple	50	176	50	ZeroVA (Phihong)	BYD	N/A
UK	Go-Ahead Group	Northumberland Park	126		118	BYD AC	BYD	
Canada	Toronto Transit Commission	Arrow Road	15	288	35	ABB, HVC 150	New Flyer	Viriciti HASTUS Clever Devices
Canada	Toronto Transit Commission	Mount Dennis	25	329	25	ABB, HVC 150	Proterra	Viriciti HASTUS Clever Devices
Canada	Toronto Transit Commission	Eglinton	10	247	10	BYD	BYD	Viriciti HASTUS Clever Devices
Canada	Toronto Transit Commission	Birchmount	10	228	10	Power Electronics	New Flyer	Viriciti HASTUS Clever Devices
Australia	Transit Systems	Kingsgrove Sydney	99 (installing)	170	99	Hitachi	Custom Denning	GeoTab HASTUS
Australia	Transit Systems	West Footscray	9	181	6	Kempower	BYD	GeoTab
Australia	Transit Systems	Smeaton Grange	18	96	12	ZeroVA (Phihong), Kempower	Yutong BCI	GeoTab
Australia	Seymour Coaches	Seymour	3	72	3	Siemens	Volvo	Volvo Connect
Australia	Busways	Penrith	18	113	12	ABB	Custom Denning Yutong	ZF telematics Geotab Hive
Australia	TasNetworks	Multiple	12	360	58	ABB	Multiple	N/A



Appendix A: BetterFleet Asset Overview

BetterFleet Asset is a comprehensive fleet management and transition planning platform designed to streamline data management, optimize fleet operations, and facilitate the transition to electric vehicles. The following sections outline the platform's core functionalities and system interfaces.

System Setup and Configuration

BetterFleet Asset is configured to provide secure, role-based access for fleet operators through a dedicated login system. The platform is fully customizable, allowing users to define organization types, reporting periods, asset categories, electricity rates, and renewable energy content at both fleet-wide and site-specific levels.

Home > Settings > Indices

Indices

Fuel

Current year petrol price

\$

2.2

[Define current / future prices](#)

Current year diesel price

\$

2

[Define current / future prices](#)

Current year autogas price

\$

1.7

[Define current / future prices](#)

Vehicle price index

Electric vehicle price index for next year

↓

0.2

[Define current / future prices](#)

ICE vehicle price index for next year

↑

3

[Define current / future prices](#)

Select electricity rate structure

Default

▼

[Define current / future index](#)

[Add a new rate structure](#)

Vehicle price index

Peak rate

0.19

%

Charging profile

50

%

Off peak rate

0.22

%

Charging profile

30

%

Shoulder rate

0.22

%

Charging profile

20

%

Environmental charge

0.11

%

Charging profile

100

%

Capacity charge

1800

%

Charging profile

0

%

Metering charge

3000

%

Charging profile

0

%



Many fleets operate with incomplete datasets. To address this, BetterFleet Asset enables the creation of default asset types, allowing fleet managers to substitute missing vehicle details with predefined templates.

Edit a definition

Jump to... ▾

Asset class *

Light Commercial

Asset subclass *

Cab Chassis

Annual distance

10000

kms

Fuel efficiency

7.2

L/100 kms

Max daily use

300

L/day

Replacement months

60

months

Replacement distance

120000

kms

Insurance cost / year

\$ 1000

Registration cost / year

\$ 600

Service cost / km

\$ 0.1

Tyre cost / km

\$ 0.04

Procurement type

Finance lease ▾

Vehicle discount rate

15

%

On public road use (Fuel tax credit)

0.0

%

Electricity rate definitions

Rates for the current year

Rate name *	Rate cost *	Rate unit *	Charging profile
Peak rate	\$ 0.2	per kWh ▾	50 %
Off peak rate	\$ 0.18	per kWh ▾	30 %
Shoulder rate	\$ 0.19	per kWh ▾	20 %
Environmental charge	\$ 0.1	per kWh ▾	100 %
Capacity charge	\$ 2500	per year ▾	0 %
Metering charge	\$ 5000	per year ▾	0 %

Add rate

Renewables for the current year

Source of renewable energy *	Percentage of renewable energy *
On site renewables ▾	\$ 10
Green energy ▾	\$ 20

Add renewable

Home > Settings > Emission

Emissions

Grid intensity for current year (CO2/kWh of electricity)

655

[Define current / future intensity factor](#)

Renewable energy % for current year

10 %

[Define current / future renewable %](#)

Cost of carbon credit (\$ / tonne) for current year

\$ 50

[Define current / future carbon costs](#)

Emission factors (g/ Litre of CO2 per unit of fuel)

Petrol

2.3

[Edit](#)

Diesel

1.5

[Edit](#)

LPG

1.8

[Edit](#)



Data Management: Uploading, Cleaning, and Maintaining Vehicles

A key advantage of BetterFleet Asset is its ability to keep fleet data up to date. Users can manually input data or import it from asset management systems or spreadsheets. The platform includes detailed error logging, allowing fleet managers to identify missing information and generate data-tracker reports to ensure accuracy. When complete data is unavailable, default vehicle settings can be applied to maintain analysis consistency.

Home > My fleet

My fleet

Search

Import assets

Registration #	Make / model	Powertrain	Asset class	Garage location	Delivery date	Odometer (kms)	
AD12CD	mitsubishi fuso FK 1024	ICE	Heavy commercial	Rozelle	16/06/2022	598810	
AI28HQ	mitsubishi fuso FV51	ICE	Heavy commercial	Narrandera	16/06/2022	531714	
AJ92VB	mitsubishi fuso FK 1024	ICE	Heavy commercial	Ballina	16/06/2022	177888	
AK48VX	mitsubishi fuso FM 1627	ICE	Heavy commercial	Warratah	16/06/2022	249218	
AP03QD	mitsubishi fuso FV54	ICE	Heavy commercial	Yennora	16/06/2022	238721	
AQ89LC	ISUZU FVY	ICE	Heavy commercial	Bega	16/06/2022	143744	
AR20GR	mitsubishi fuso FM 1627	ICE	Heavy commercial	Russell Vale	16/06/2022	147200	
AV05EP	mitsubishi fuso FV54	ICE	Heavy commercial	Broken Hill	16/06/2022	292197	

Home > My fleet > Import assets

Import assets

1. Download the template to upload asset details

This template contains all the columns required to import your fleet information to maintain your asset and plan for transition and budgeting. The instruction sheet provides direction on mandatory fields and which ones can be defaulted. Do not make changes to columns, else the upload would fail. Download template

[Download template](#)

2. Ensure the asset class / subclass you enter in the template exist in the Asset settings

Asset class and subclass settings help you default a number of fields in the template. We have provided a standard set of defaults that you can edit or add your own asset class / subclass setting. Your upload would fail if the asset class and subclass does not exist in the Asset settings

3. Upload the updated template file

Save your file as .csv and click on the link below to find the file and upload.

Browse

No file selected

Date format *
DD/MM/YY

Continue

Cancel

Import assets

Search

Search by Registration #

Upload validation

Row 8: Registration # - CP92CO

Invalid Body type

Invalid Drive type

Row 9: Registration # - CP91CO

Invalid Body type

Invalid Drive type

Row 10: Registration # - CP57KI

Invalid Body type

Invalid Drive type

Row 11: Registration # - CP56KI

Invalid Body type

Invalid Drive type

0 assets uploaded << 1 2 3 ... 20 21 22 >>

Back

Download error records

Cancel



Data Processing: Fuel Card and Telematics Integration

For a deeper understanding of fleet operations, BetterFleet Asset integrates with fuel card data, telematics, or both. Bulk fuel card data uploads are automatically analyzed to estimate distances traveled and real-world driving efficiency, accounting for variables like idling. The system enhances data accuracy by automatically correcting errors using interpolation and extrapolation algorithms. Each dataset is assigned a quality score based on time linearity and utilization trends.

Registration # *

1TZ4R1

Annual distance *

Fuel card

12,000

kms

Fuel efficiency *

Fuel card

9.6

L/100km

Max daily use *

Fuel card

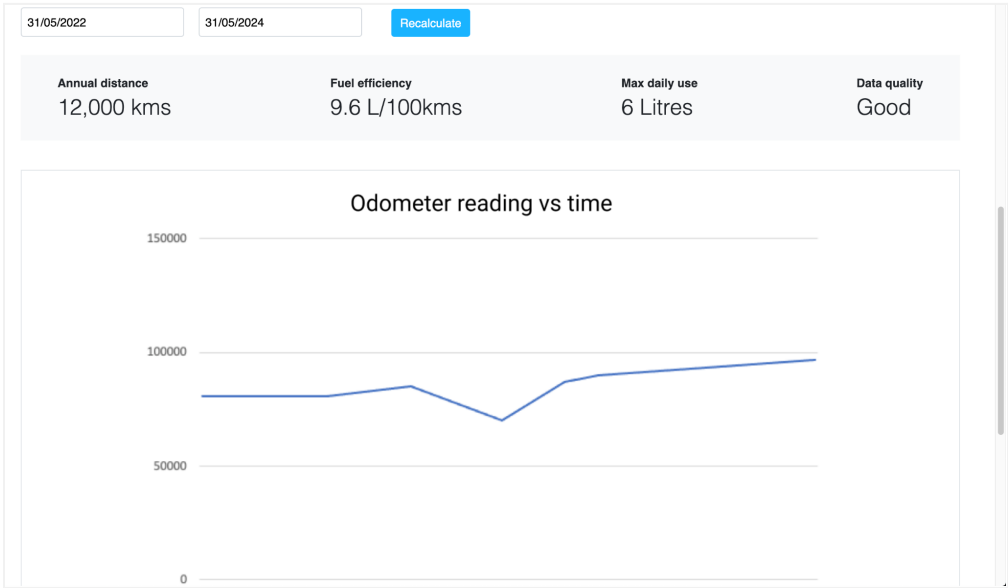
6.00

L

Save

Cancel

Fuel date	Odometer (kms)	Fuel volume (L)	Total cost	Fuel efficiency (L/100kms)	Cost / km
3 Sep 2021	80,660	40	\$60	9.6	\$0.10
21 Sep 2021	80,980	30	\$43	9.6	\$0.10
3 Oct 2021	85,000	60	\$75	9.6	\$0.10
16 Oct 2021	70,000	40	\$50	9.6	\$0.10





Comprehensive Vehicle Database

BetterFleet Asset leverages EVenergi's extensive database of both electric and traditional vehicles. This resource enables total cost of ownership (TCO) and emissions comparisons, helping fleet managers determine the best zero emission replacements based on duty cycle, asset class, and operational costs.

 Engine ICE Available NOW Seats 2 Volkswagen Caddy TSI160 2KN SWB Manual Manual 2KN 2020 Price from: \$23,491 Ancap rating: NA Real range: NA Top speed: NA Running cost/year: \$\$ Body: van Emissions: 136g/km Acceleration: NA	 Engine ICE Available NOW Seats 2 Renault Kangoo Compact SWB Manual Manual F61 Phase II 2020 Price from: \$23,627 Ancap rating: 4 Real range: NA Top speed: NA Running cost/year: \$\$ Body: van Emissions: 143g/km Acceleration: NA	 Engine ICE Available NOW Seats 2 Peugeot Partner 110 THP Medium Wheelbase Manual Manual K9 2020 Price from: \$23,627 Ancap rating: 4 Real range: NA Top speed: NA Running cost/year: \$\$ Body: van Emissions: 130g/km Acceleration: NA
 Engine ICE Available NOW Seats 2 LDV G10 Manual Manual SV7C 2020 Price from: \$28,699 Ancap rating: 3 Real range: NA Top speed: NA Running cost/year: \$\$ Body: van Emissions: 218g/km Acceleration: NA	 Engine ICE Available NOW Seats 3 LDV V80 SWB Manual Manual 2020 Price from: \$29,655 Ancap rating: 3 Real range: NA Top speed: NA Running cost/year: \$\$ Body: van Emissions: 250g/km Acceleration: NA	 Engine BEV Available NOW Seats 2 BYD T3 Base 2022 Price from: \$31,773 Ancap rating: 1 Real range: 256.83km Top speed: 100km/h Running cost/year: \$\$ Body: van Emissions: NA Acceleration: NA

Procurement
[Update >](#)

Purchase Price ¹
[Update >](#)

Servicing and Tyres ¹
[Optimise >](#)

Residual value
[Optimise >](#)

Operational Term (years)
[Optimise >](#)

Annual driving distance
[Optimise >](#)

% personal use ¹
[Update >](#)

Charging equipment ¹
[Update >](#)

cash

\$ 68,182.00

\$ 1,604.23

\$ 19,159.13

5

14,000

0%

\$ 0

Save Scenario

Ford E-Transit 420L



3 BEV ANCAP

TCO Funding ¹

\$ 42,350.95

+ Capital Cost

\$ 68,229.00

- Running costs

\$ 5,923.98

+ Service and maintenance

\$ 1,604.23

+ Fuel costs

\$ 0.00

+ Taxes and Registration

\$ 4,319.75

Charger cost

\$ 0.00

Residual value

\$ 19,159.13

Fringe Benefit Tax ¹

\$ 0.00

...

\$ 12,642.00



Managing Garages and Charging Infrastructure

The platform supports fleet garage management by tracking site capacity, maximum electricity demand, and upgrade cost calculations. Users can define location-specific electricity rate structures, which are factored into TCO and cash flow projections. Existing charging infrastructure can also be mapped and managed within the system.

Location

Location name *

Warratah

Contact person

Site address

Depot Cnr Crescent & Turton Roads, Waratah, NSW 2298

Access type

Private

Number of car spaces

50

Maximum switchboard capacity *

500

Site maximum demand *

200

Site available capacity *

300

Available capacity last checked

14/06/2022

Location of switchboard

Average distance between switchboards and parking spaces

0

m



Electricity Costs

Contract type *

Corporate

Year	Supply charge	Peak rate	Off-peak rate	Shoulder rate	Capacity charge	Metering charge	Renewable %	Last updated
2022	0	0	0	0	0	0	0	21/06/2022

Add energy contract details

Existing charger infrastructure

Charger name	Zone	Charger type	Type	Kilowatts	Last updated
Mon_1	A	DC	CCS	50	21/06/2022

Add a charger

Number of vehicles per charger (Light vehicles) *

1

Number of vehicles per charger (Heavy vehicles) *

1



Fleet Dynamics Reports

Once data is onboarded, BetterFleet Asset generates detailed fleet dynamics reports, providing management insights into current operations and long-term transition planning. These reports help fleet managers monitor progress, optimize strategies, and ensure alignment with sustainability goals.

Fleet dynamics report

Currently viewing

All locations

Summary

Light vehicles

Heavy vehicles

Fleet composition >

275
vehicles



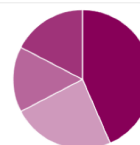
Chargers >

68

EV readiness >

72

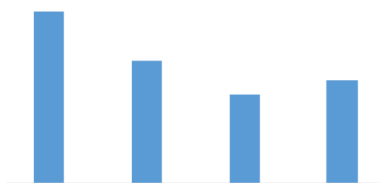
based on range
and asset class



Replacements >

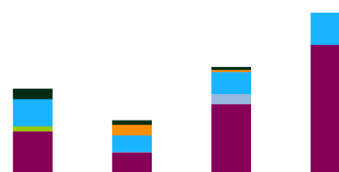
42
vehicles

This year



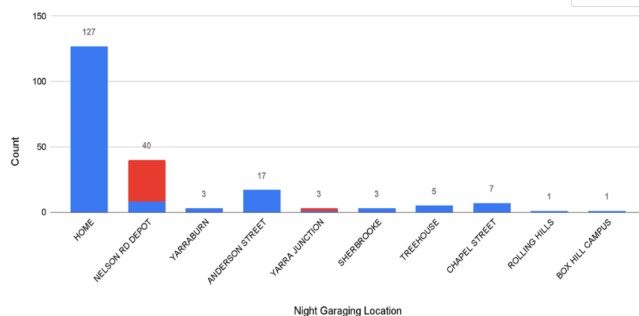
Age distribution >

Average
2.8
years



Vehicle garaging locations

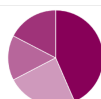
Night



Carbon emission profile

Last year

9025
Tonnes



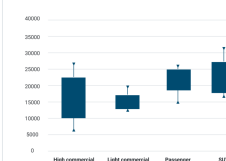
Estimated costs

Last year

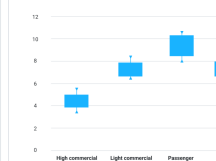
\$ 5.2
Million



Utilisation



Fuel efficiency





Pairwise Vehicle Comparisons

One of BetterFleet Asset's most powerful features is its ability to compare existing fleet vehicles with zero emission alternatives based on asset class and duty cycle. Fleet managers can assess TCO and emissions reductions, compare multiple EV options, and quickly determine the best-fit zero emission vehicles without manually researching market options.

Cost led transition - Isuzu N75

2020

2022

2025

Current vehicle

1st replacement vehicle

Next replacement vehicle

Isuzu N75 150L Auto

Volvo FL electric
Recommended eV replacement

Purchase year

2010

Odometer reading

125,125

Purchase price

268,000

Maintenance cost / year

2500

Insurance cost / year

1000

Registration cost / year

850

Gross vehicle mass

7500 kg

Payload

4000 kg

Gradeability %

43

Total power

140 kW

Emission grams per km

250 g

Annual distance

15000 kms

Fuel efficiency

7.0 L / kms

Usual daily distance

120 kms

Max distance

190 kms

Replacement year

2022

Odometer reading

NA

Purchase price

450,000

Maintenance cost / year

2000

Insurance cost / year

1000

Registration cost / year

850

Gross vehicle mass

16,000 kg

Payload

6000 kg

Gradeability %

40

Total power

130 kW

Emission grams per km

0 g

Battery capacity

265 kWh

Fuel efficiency

5 kWh / L

Rated WLTP range

187 kms

Real range

160 kms

Select a different replacement vehicle

Economic transition - Nissan X-trail

2020

2022

2025

Current vehicle

1st replacement vehicle

Next replacement vehicle

Nissan X-trail - SUV

Hyundai Ioniq 5
Recommended eV replacement

Purchase year

2016

Odometer reading

75000

Purchase price

31,800

Maintenance cost / year

4,400

Insurance cost / year

1,000

Registration cost / year

850

Energy cost / year

8,000

TCO / km

0.33

Gross vehicle mass

2107

Total power

126 kW

Emission grams per km

188g

Annual distance

15000 kms

Fuel efficiency

9.6

Avg daily distance

210 kms

Max distance

330 kms

Purchase year

2022

Odometer reading

NA

Purchase price

69,000

Maintenance cost / year

1,900

Insurance cost / year

1,000

Registration cost / year

850

Energy cost / year

1,540

TCO / km

0.29

Gross vehicle mass

2540

Total power

160 kW

Emission g / km

0 g

Battery capacity

79 kWh

Fuel efficiency equivalent

2.1

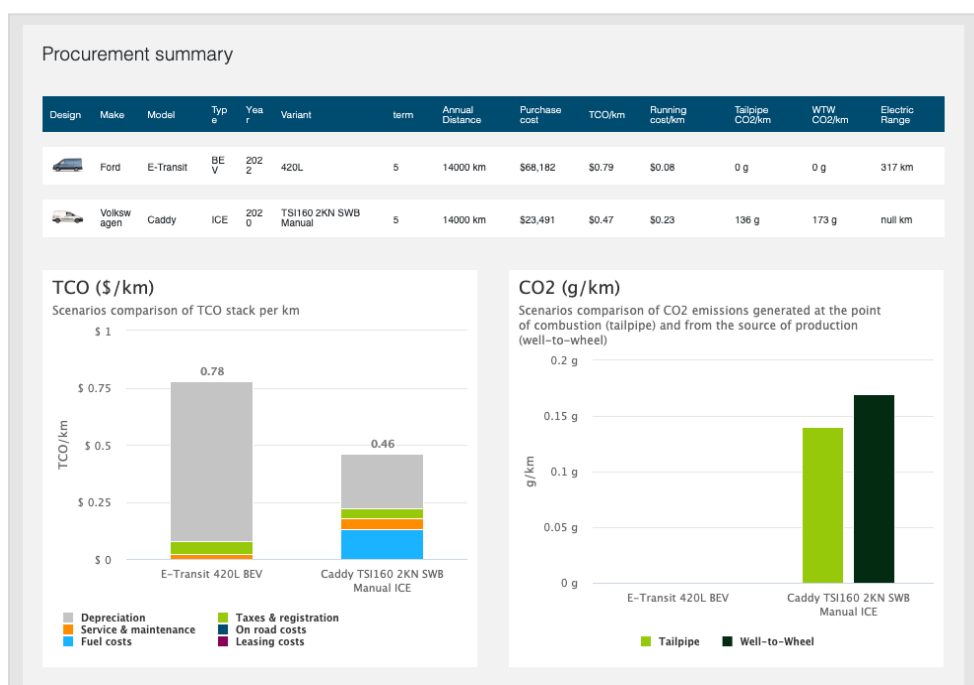
Rated WLTP range

451 kms

Real range

382 kms

Select a different replacement vehicle





Fleet Asset Replacement Planning

The system enables organizations to define fleet transition parameters, such as electrification targets, emissions reduction goals, or TCO objectives. Users can plan transitions by asset class and set a preferred start year for EV adoption, optimizing cash flow and minimizing emissions over time.

Create Asset Replacement Plan

Fill in following details to create the plan.

Plan name *

2022_Annual_forecast

Plan year *

2022

Asset class *

Please select

Transition term *

10

years

Scenarios

List the the transition scenarios you wish to compare in the asset replacement plan. There must be at least 1 scenario in the plan.

Scenario name	Description	Electrification % Goal / count	Emission reduction target	Max TCO % deviation	Start eV transition year	
Economic transition	Cost led transition based on TCO		50%	+15%	2022	⋮
Technology led	Achieve electrification goal	70%				⋮
Business as Usual	Continue with existing fleet			+10%	2025	⋮

Add a new scenario

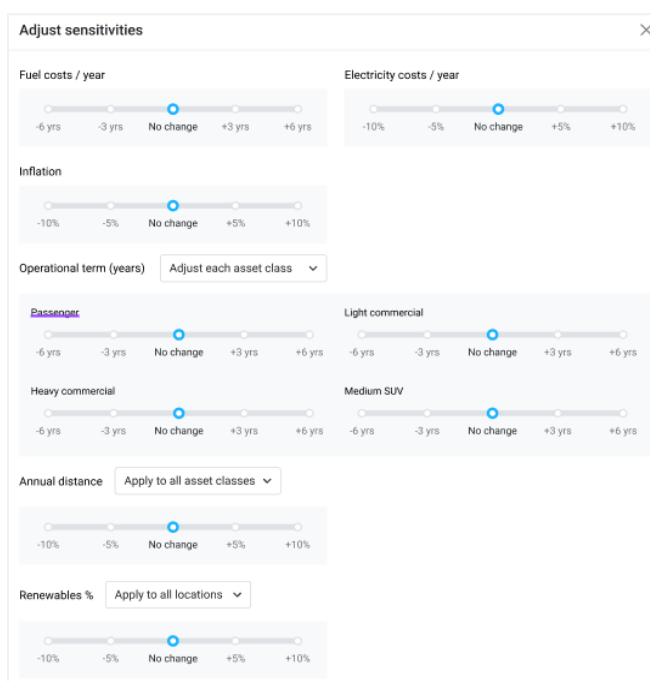
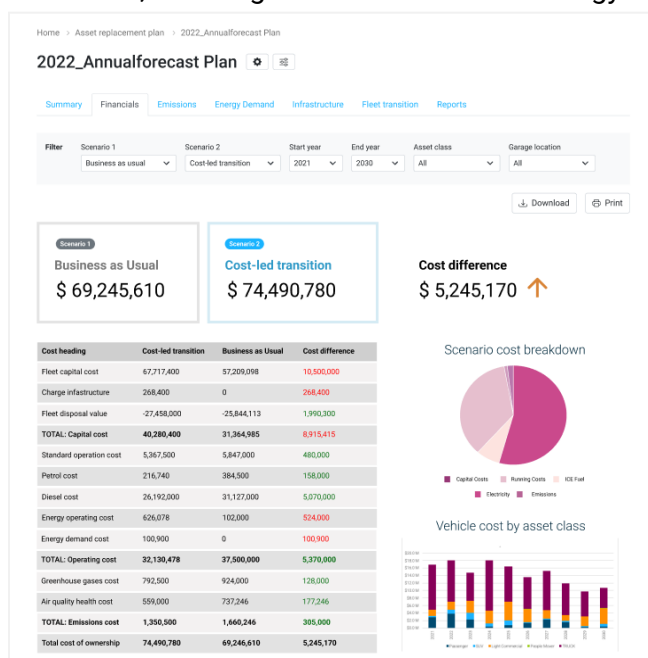
Continue

Cancel



Scenario and Sensitivity Analysis

BetterFleet Asset allows users to model different fleet transition scenarios based on current fleet composition, fuel consumption, garage capacity, and operational settings. The platform calculates financial impacts, emissions reductions, and infrastructure requirements while enabling scenario comparisons. Sensitivity analysis tools allow adjustments to key variables, such as vehicle holding periods, annual mileage, renewable energy integration, and cost structures, ensuring the best transition strategy for each organization.





Appendix B: BetterFleet Plan Overview

Advanced Route Emulation

- 1) Through our easy to use “Resources” tab, you will be able to upload new vehicle, charging, location and energy parameters, which will then be able to be modeled in the subsequent modules.

The screenshot shows the BetterFleet interface with the 'Resources' tab selected. The 'Vehicles' sub-tab is active, displaying a table of vehicle data. The table has columns for Name, Make, Model, and Created At. There are seven rows of data, including default vehicles and specific models like Gillig BE 40 and Mack LR Electric. An 'Add Vehicle' button is at the bottom.

Name	Make	Model	Created At
40ft	DefaultMake	DefaultModel	18 Oct 2023, 14:08
40ft	DefaultMake	DefaultModel	18 Oct 2023, 14:10
Gillig BE 40	Gillig	Battery Electric	15 Sept 2023, 12:20
Mack LR Electric - refuse truckMack		LR Electric	15 Sept 2023, 12:36
35ft	DefaultMake	DefaultModel	18 Oct 2023, 14:08
40ft	DefaultMake	DefaultModel	18 Oct 2023, 14:06

- 2) After you have loaded in your schedule and vehicle data, select scenarios you wish to model.

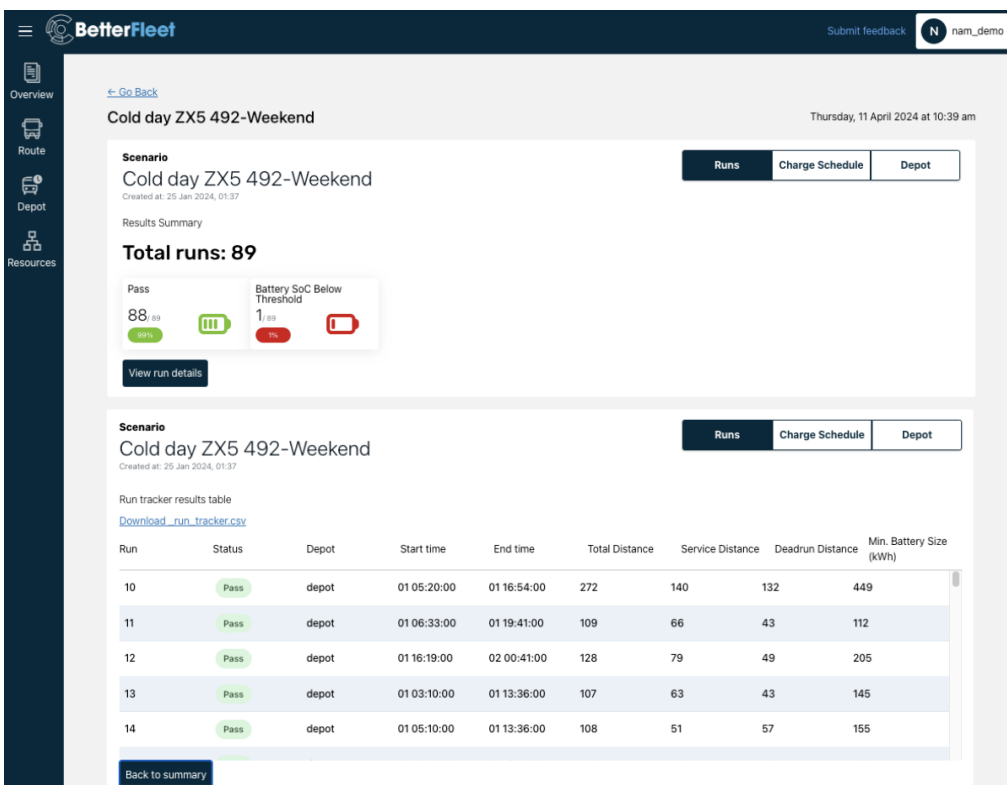
The screenshot shows the '2024 Depot Migration' page in BetterFleet. It has two tabs: 'Run' and 'Reports'. The 'Run' tab is active, showing two steps: 'Step 1: Select a scenario to use' and 'Step 2: Select a schedule to use with the scenario'. Step 1 has two options: 'Cold day ZX5 492' and 'Normal day NF 435'. Step 2 has two options: 'Weekday' and 'Weekend'. There are buttons for 'Add Scenario', 'Run Scenario', and 'Edit Project'.



3) A high-level overview will be provided, outlining routes(runs) that passed or failed based on minimum requirements. A high level summary will be provided, outlining:

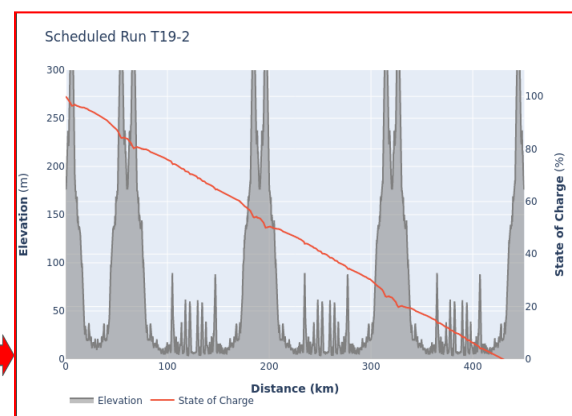
- Status of run
- Depot
- Start/Finish time
- Total distance traveled (Service/Deadrun)
- Min. kWh battery capacity required

A detailed 'run_tracker.csv' file is able to be downloaded to a more in-depth analysis or for import into your existing reporting and analytics processes or tools.



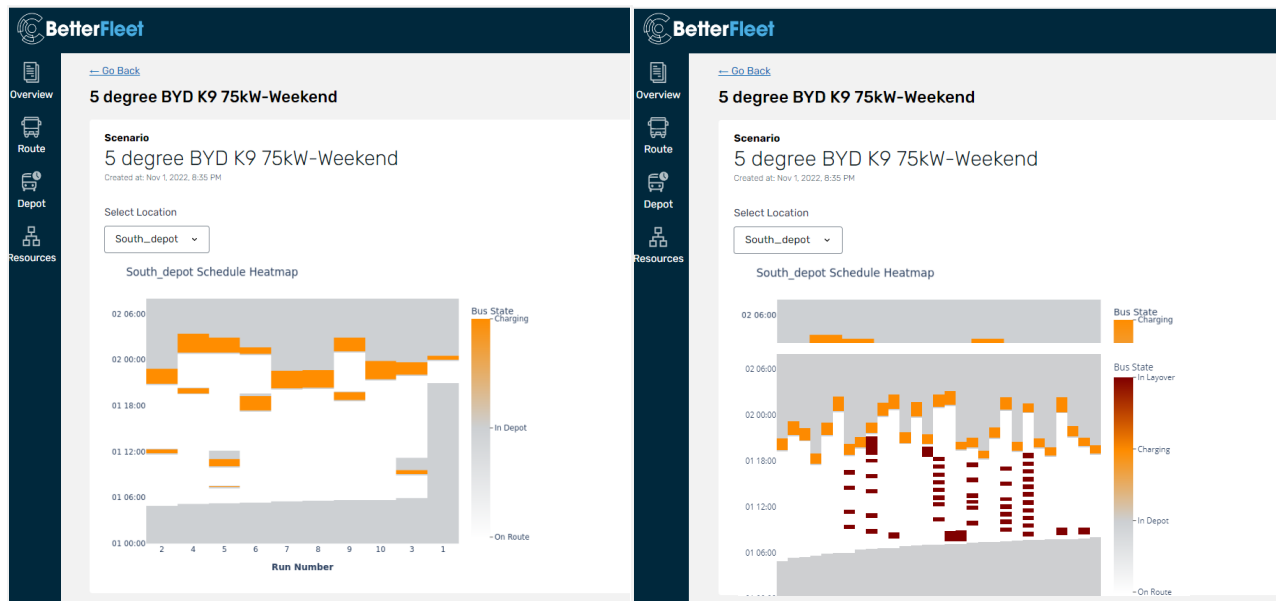
Example of detailed output for a failed run.

	A	B	C	D	E	F	G	H	I
1		start_node	time_trip	end_node	time_trip	trip_distance	max_trip	upper_trip	net_energy
2	1896_1	South_dej	01 05:55:0	95109	01 06:12:0	7.08	230.518	100.2412	8.4659
3	1897_2		95109	01 06:12:0	95129	01 06:19:0	1.85	53.849	36.1067
4	5615_1		95129	01 06:24:0	95129	01 08:38:0	51.75	198.7285	44.0901
5	5616_2		95129	01 08:38:0	South_dej	01 08:55:0	9.12	240	133.6732
6	1903_1	South_dej	01 11:12:0	95129	01 11:31:0	7.05	111.5128	84.2253	8.0899
7	1904_2		95129	01 11:31:0	95129	01 13:57:0	51.75	198.7285	44.0901
8	5642_1		95129	01 13:57:0	95129	01 16:32:0	51.75	198.7285	44.0901
9	5643_2		95129	01 16:32:0	95129	01 19:04:0	51.75	198.7285	44.0901
10	5636_1		95129	01 19:04:0	95129	01 21:36:0	51.75	198.7285	44.0901
11	5691_2		95129	01 21:36:0	South_dej	01 21:53:0	9.12	240	133.6732

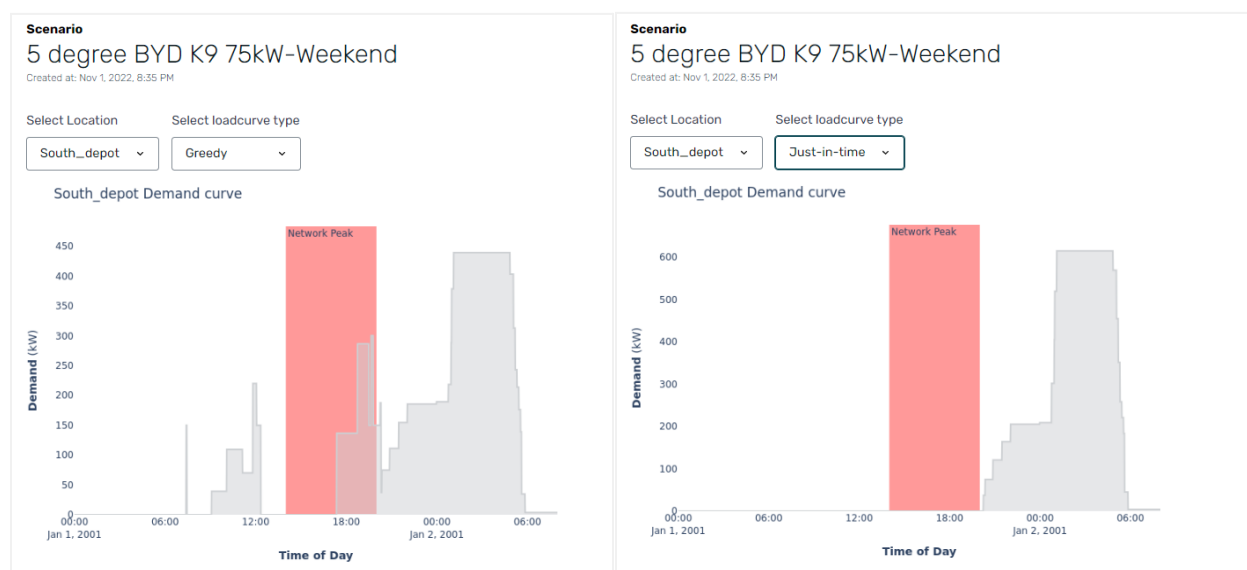




- 4) View the fleet's movements over a 30 hour block, outlining when the vehicle is on-route, charging, in a depot or in a layover. This tool can be utilized to identify new charging locations as a layover longer than 15 minutes will appear in red.



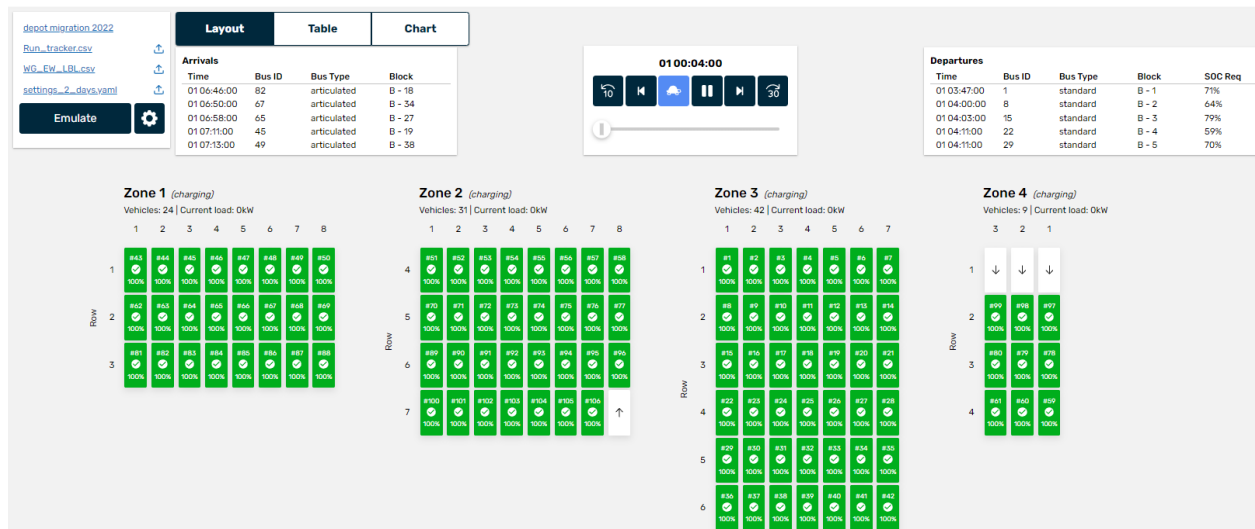
- 5) Once your routes have been emulated and individual vehicle charging needs identified, you are able to view and modify the site load requirements. You can manipulate charge times to avoid peak usage times, positively impacting the grid and your operating costs. This load modification will be utilized in BetterFleet Manage and can help identify, and even reduce, capacity of electrical upgrades required.





Depot Emulation

Create a layout of your depot easily in .csv format and upload into BetterFleet Plan. BetterFleet will then make smart charging decisions on vehicle parking locations and emulating vehicle leave and return times.



Vehicles will be sent out for operations once they have reached the minimum required state of charge and will allow you to visualize potential blocking onsite. This view also allows us to visualize total energy used per zone, which is beneficial for depot design.

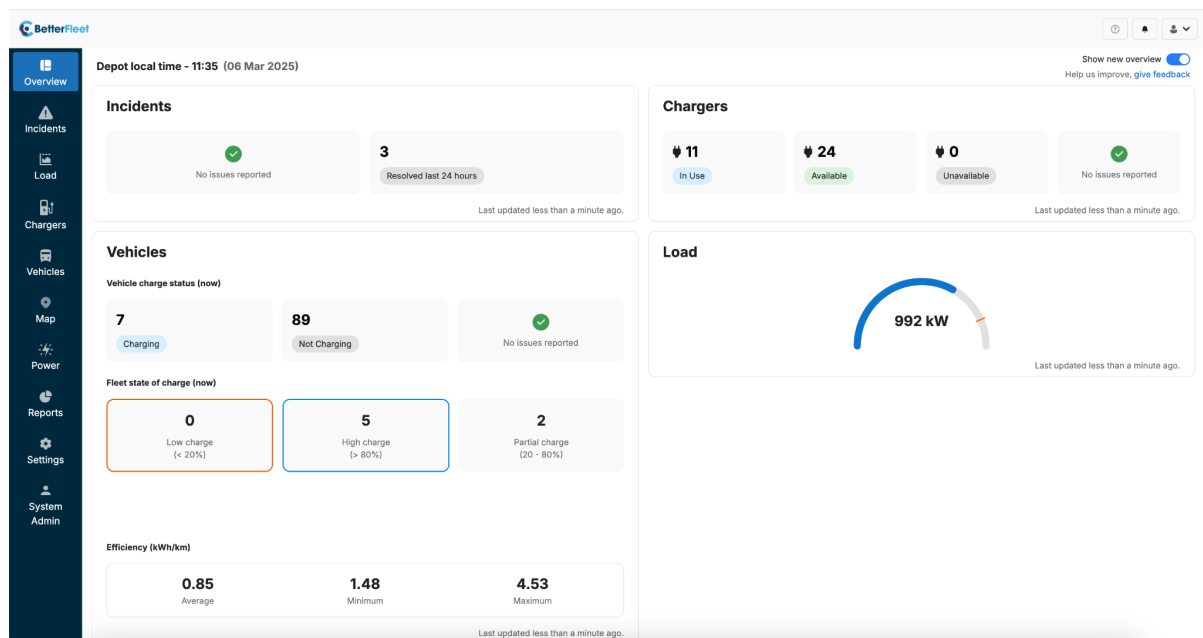


Appendix C: BetterFleet Manage Overview

The following sections provide a detailed look at the core features and capabilities of BetterFleet Manage - demonstrating how the platform supports safe, reliable, and efficient fleet electrification at scale.

Overview

The Overview page in BetterFleet Manage provides a quick, real-time, at-a-glance dashboard for fleet operators to monitor key charging and operational metrics efficiently. Designed for improved usability, the Overview page consolidates essential data on incidents, vehicle charge status, charger availability, and depot energy load, ensuring quick access to critical insights.



Key insights include:

- Highlights any reported incidents or confirms a clean operational status.
- Displays the number of incidents resolved in the last 24 hours.
- Shows the total number of chargers categorised by In Use, Available, and Unavailable.
- Provides real-time insights into charger availability and overall depot charging capacity.
- Displays the number of vehicles actively charging vs. not charging.
- Tracks fleet state of charge (SoC) across three categories:
 - Low Charge (<20%)
 - Partial Charge (20–80%)
 - High Charge (>80%)
- Visual representation of total energy consumption (kW) across the depot.



- Displays energy efficiency (kWh/km) including average, minimum, and maximum values.

Incidents

The Incidents page in BetterFleet Manage gives operators a central view of charger alerts and OCPP status notifications, helping teams identify and respond to issues as they happen. The interface is designed for quick filtering, easy navigation, and practical action - whether you're triaging errors or reviewing resolved events.

Active	Date	Level	Type	Charger	Connector	Connected Vehicle	Error
	28/11/2024, 04:03:05	Error	Status: Faulted	SBTF-HLX180-4B-PLU	1		See next StatusNotification for more information
	28/11/2024, 04:03:05	Error	Status: Faulted	SBTF-HLX180-4B-PLU	1		Check functioning of DC contactors
	28/11/2024, 04:03:04	Error	Status: Faulted	SBTF-HLX180-4B-PLU	1		See next StatusNotification for more information
	28/11/2024, 03:55:31	Error	Status: Faulted	SBTF-HLX450-5B-PNT			State transition
	28/11/2024, 03:55:30	Error	Status: Faulted	SBTF-HLX450-5B-PNT	1	Bus 4800	Check DC path for failures
	28/11/2024, 03:55:29	Error	Status: Faulted	SBTF-HLX450-5B-PNT	1	Bus 4800	See next StatusNotification for more information
	28/11/2024, 03:55:29	Error	Status: Faulted	SBTF-HLX450-5B-PNT	1	Bus 4800	Close cabinet door and reset EVSE
	28/11/2024, 03:55:28	Error	Status: Faulted	SBTF-HLX450-5B-PNT	1	Bus 4800	See next StatusNotification for more information
	28/11/2024, 03:55:27	Error	Status: Faulted	SBTF-HLX450-5B-PNT	1	Bus 4800	Replace overvoltage protection device
	28/11/2024, 03:55:27	Error	Status: Faulted	SBTF-HLX450-5B-PNT	1	Bus 4800	See next StatusNotification for more information
	28/11/2024, 03:51:38	Error	Status: Faulted	SBTF-HLX180-4B-PLU			State transition
	28/11/2024, 03:51:37	Error	Status: Faulted	SBTF-HLX180-4B-PLU	1		Check EVSE internal communication
	28/11/2024, 03:51:36	Error	Status: Faulted	SBTF-HLX180-4B-PLU	1		See next StatusNotification for more information
	28/11/2024, 03:38:46	Error	Status: Faulted	SBTF-ABB450-4A-PNT	1		OtherError
	28/11/2024, 02:57:34	Error	Status: Faulted	SBTF-HLX450-4B-PNT			State transition

From the left-hand menu, clicking on Incidents opens a table showing the 50 most recent alerts received from connected chargers. Each row represents a distinct incident. Users can double-click any alert to toggle its status between active and inactive. Incidents can be filtered by date, severity (Info, Warning, Error), charger, vehicle, or a combination of these filters. Inactive incidents are hidden by default but can be shown by enabling the “Include Inactive Incidents” toggle.

Alert levels follow a standard framework:

- **Error:** When a charger enters a “Faulted” OCPP state, the system flags it as an Error - meaning the unit is unavailable and unable to deliver power.



- **Warning:** When the charger reports an error code but recovers without entering a faulted state, the alert is marked as a Warning. This suggests an issue that has been resolved but may need attention.
- **Info:** Normal operation with no fault or error reported. These are logged for visibility but don't require action.

Notification preferences can be managed on the Settings > Notifications tab. Users can choose to receive alerts by email or SMS, based on the severity level and their role, ensuring timely and relevant updates.

Back to app

Global settings

Workspace

Notifications

Depot settings

Demo is the selected depot

General

Chargers

Vehicles

Power

Zones

Manage user alert notifications and adjust communication preferences.

Add subscriber

Subscriber	Email	Phone	SMS Preference	Email Preference	Actions
Jane Bloggs	jane.bloggs@betterfleet.com	555 555 1234	info, warning, error	info, warning, error	
Joe Bloggs	joe.bloggs@betterfleet.com	437 000 000	error	error	

BetterFleet's alert system is designed to go beyond surface-level fault codes. We've developed a framework—Info, Insight, Action, Automation—to help operators understand not just that something went wrong, but what it means and what to do next. Where possible, we integrate diagnostic information directly from charger OEM manuals into the platform. This allows users to see the context and recommended troubleshooting steps without needing to search external documents. As in the below example, if a charger from ABB reports a fault, BetterFleet will include the manufacturer's explanation and action steps in the alert - emailed or shown in the portal - so teams can respond faster and more accurately.

Alerts

From: BetterFleet Notifications <notifications@betterfleet.com>
Date: Thu, Feb 8, 2024 at 3:11 PM
Subject: Alert - ABB Gantry Lane 6 faulted - StopReason: GlobalInterlockFail
To: support@betterfleet.com, support@betterfleet.com

What is impacted?
ABB Gantry Lane 6 faulted
Make: ABB, Model - MD_HVC, BUS, Maximum power - 450 kW
Vehicle connected: Bus 4813
Last known state of charge: 75% (at 2024-02-08 12:50:00)

Where?
KCM - South Base depot
Zone: Test facility

Time of incident
2024-02-08 13:50:00

Error code
StopReason: GlobalInterlockFail

Error description
Global interlock activated. Can be related to: RCD tripped, Emergency Button pressed, One of the Doors open, CCS Board issue, disconnected connector while there is still high voltage on the outlet.

Possible actions
1. Check RCD
2. Check if emergency button is pressed
3. Close the cabinet door, if opened.

Support
Click here to raise a support request with BetterFleet

This is an automated notification from BetterFleet

Info

Insights

Actions

ABB

heliox

VendorErrorCode	Description	Customer Action
StopReason: Invalid	Reason for stopping cannot be identified.	None
StopReason: NoError	No error occurred, similar to a normal stop.	None
StopReason: UserRequestedStop	User pressed the stop button on HMI. This stop reason is also used in HVC depot boxes, when the stop was due to the sequential charging controller.	None
StopReason: ConnectorButtonPressed	CCSI connector button is pressed by user. Proximity pilot (PP) voltage is higher than a threshold.	None
StopReason: VehicleStop	The vehicle requested to stop the session by a driver request or internal trigger in the controller of the vehicle. This is not a stop of a session due to some error on vehicle side, e.g. communication protocol violation, but a stop according to standard.	None
StopReason: IncompatibleVehicle	This vehicle cannot be charged on this outlet. It does not meet the required charging parameters supported by this charger. Typical case: CHAdeMO in Japan is limited to 450V, so if a car from outside Japan with a target of 500V is connected, it is incompatible.	Check car specification
StopReason: Isolation TestFailed	Most common cause: Isolation resistance is too low. In the case of pantograph this can be caused by weather circumstances, or the isolation measurement is disturbed, or the y capacity is too high to be able to do a proper measurement. If only one vehicle falls on this outlet and other vehicles can charge, most likely this is a vehicle problem. If the outlet cannot charge at all, the problem is likely in the IMI measurement system or noise on the grid.	Try different vehicle. If no vehicle can charge, contact ABB Service.

OCPP error code (VendorErrorCode)	Error message (Info)	Error information (VendorErrorCode)
InternalError	Unable to initialize HMI	OUTL-00000001
InternalError	CAN communication error	OUTL-00000002
InternalError	Unknown emergency message from the CAN slave	OUTL-00000003
InternalError	Generic emergency message from the CAN slave	OUTL-00000004
InternalError	Outlet cabinet climate control is not operational	OUTL-00000100
HighTemperature	Outlet cabinet temperature exceeds the threshold	OUTL-00000110
InternalError	Climate control's IO's are unavailable	OUTL-00000111
HighTemperature	The coupler temperature exceeds the threshold	OUTL-00000112

42

Commercially confidential. Not for external distribution.



This approach reduces the need to reference technical manuals and ensures that key operational staff have the right information at the right time to manage charger performance effectively.

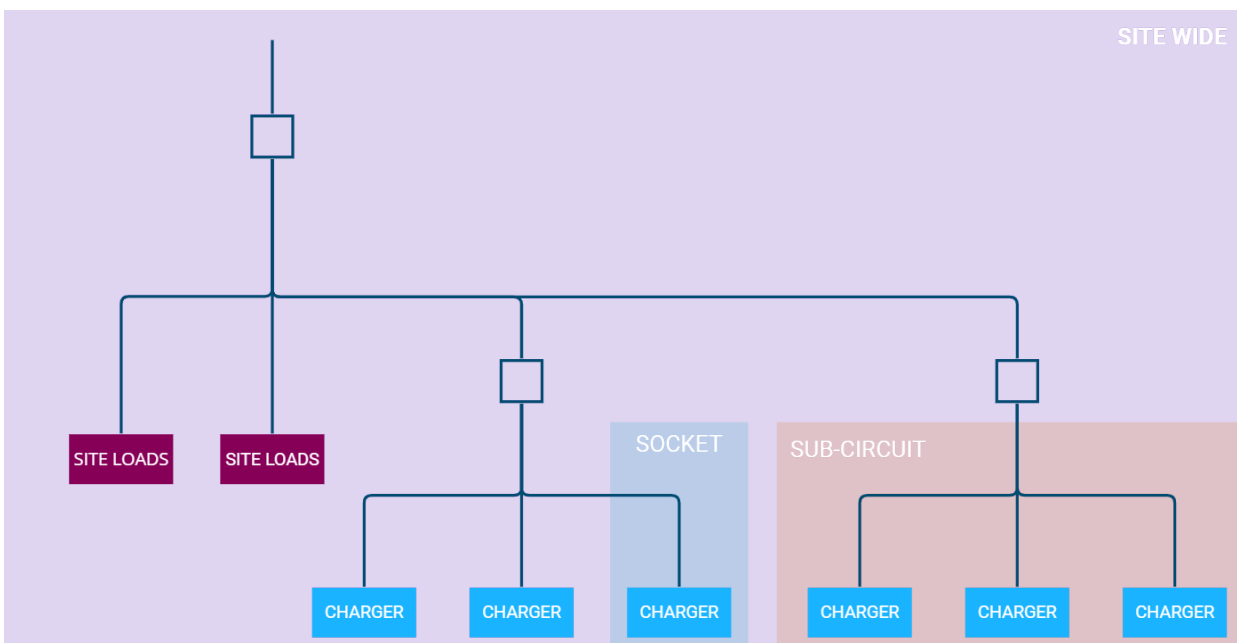


Load Management

Load Management in BetterFleet Manage is highly configurable and can be applied at the full site level or downstream - at individual chargers, sockets, or defined groups of chargers. The system is built around a flexible architecture that allows multiple strategies to be applied across different systems of influence. BetterFleet supports three primary load management functions:

Static Load Management	Dynamic Load Management	Fleet Integrated Load Management
Enables the setting of fixed limits or time-based schedules for charging power. This is typically used to stay within known infrastructure constraints or to limit charging during peak pricing periods.	Uses real-time data from on-site power meters to calculate available site capacity. The system automatically adjusts charging output in response to other loads on the site, preventing overloads and helping avoid costly infrastructure upgrades.	Integrates with scheduling and dispatch systems to make predictive charging decisions. This allows the system to prioritize which vehicles need to be charged first, based on upcoming operational needs.

These algorithms can be applied to any level of the system - from the entire depot to a specific charger or connector. For example, dynamic load management may be applied at the site level, while a static limit is simultaneously applied to a specific port or charger.





An example of our configurable load management interfaces is provided below:



BetterFleet Manage simplifies the process of charging electric vehicles by automatically adjusting charging output as site conditions change. Our on-site BetterFleet IoT Hub collects data from power meters and sends it to the cloud for processing. Each hub typically requires two power meters, however this varies based on site layout and can be confirmed with a single-line diagram. This local hardware enables the system to react instantly to site demand, ensuring that vehicle charging continues without exceeding available power capacity. If loads from HVAC systems or other infrastructure increase unexpectedly, the system dynamically adjusts charging rates to avoid tripping breakers or damaging infrastructure. This will allow you to maximize the available charging potential onsite without needing to upgrade infrastructure to account for the infrequent “worst case” scenario.

The system also supports a “shadow mode”, which simulates load management decisions prior to live deployment. This allows operators to validate system performance and build confidence in the automation before full activation.

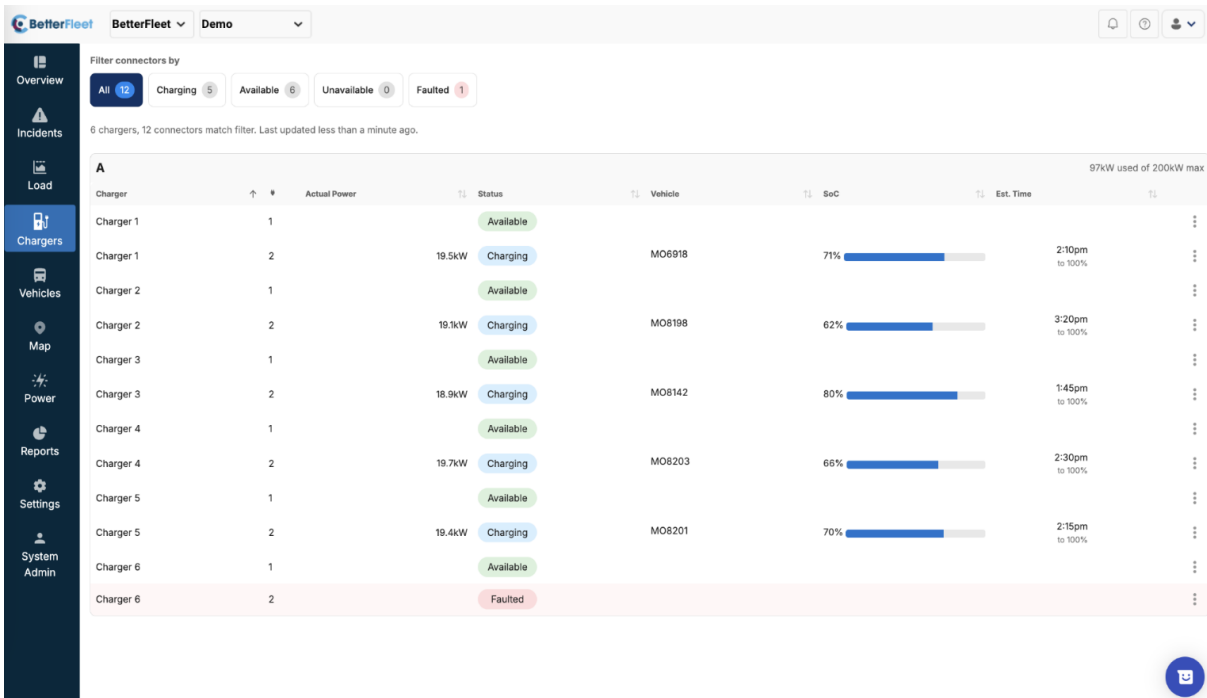
With this system, users can also avoid charging during times when electricity prices are highest. This not only saves money but also reduces the strain on the power grid, potentially eliminating the need for costly upgrades.



Chargers

The Chargers page in BetterFleet Manage gives operators a clear, real-time view of individual chargers and connectors across the site. From this interface, users can monitor charger and connector status, see which vehicles are currently plugged in, and view real-time data like state of charge (SoC), power output, and estimated time to full charge. This page is built for operational visibility and quick access to the tools needed to keep the chargers running smoothly. Key features include:

- **Charger and Connector Status:** Shows whether each unit is available, charging, faulted, or offline.
- **Vehicle Information:** Displays the SoC of each connected vehicle in real time.
- **Power Delivery:** Reports on the power currently being drawn at each connector.
- **Estimated Charging Time:** Provides a forecast for how long each vehicle will take to reach a full charge.
- **Charger Grouping and Power by Zone:** Chargers can be grouped into zones, making it easier to track performance across different parts of the site. Power consumption is visible at both the charger and zone level.
- **Sorting Controls:** Sorting data in one zone will apply the same sorting order across all zones for consistent comparisons.





Operators can also take action directly from this page using the Charger Actions modal, accessed via the three-dot menu on the far right of each row. Actions include:

- **Override Charger Power:** Set a custom power limit on a charger or connector for a set number of hours (minimum one hour). This feature is only available when dynamic load balancing is active and the charger is online. Admin or Manager access is required. Overrides can be cleared at any time.
- **Restart Charger:** Perform a soft or hard reset (depending on charger capability) to restore normal operation. This is useful for clearing certain types of faults.
- **View Charging Transactions:** Access the 10 most recent transactions for each charger or connector. Each transaction includes a graph showing power draw and SoC over time. Users can also download raw data as a CSV.

The screenshot displays the 'Chargers' page in the BetterFleet interface. A sidebar on the left contains navigation links: Overview, Incidents, Load, Chargers (selected), Vehicles, Map, Power, Reports, Settings, and System Admin. The main content area shows a table of charger status with columns for Charger, #, Actual Power, Status, Vehicle, SoC, and Est. Time. A modal window titled 'Charger 1' is open, showing details for 'Charger 1' (Available) and 'Connector 2' (Charging). The modal includes buttons for 'Restart', '+ Override', and 'OCPP logs'. The background table shows 6 chargers with 12 connectors, with a total of 100kW used of 200kW max.

Charger	#	Actual Power	Status	Vehicle	SoC	Est. Time
Charger 1	1		Available			
Charger 1	2	20.7kW	Charging	MO6918	71%	2:15pm to 100%
Charger 2	1					
Charger 2	2					
Charger 3	1					
Charger 3	2					
Charger 4	1					
Charger 4	2	19.9kW	Charging	MO8203	66%	2:35pm to 100%
Charger 5	1		Available			
Charger 5	2	20.0kW	Charging	MO8201	71%	2:15pm to 100%
Charger 6	1		Available			
Charger 6	2		Faulted			

The Chargers page brings together status, control, and reporting into one place - designed to simplify the management of charging stations, providing all the necessary information and controls in a single, user-friendly interface.



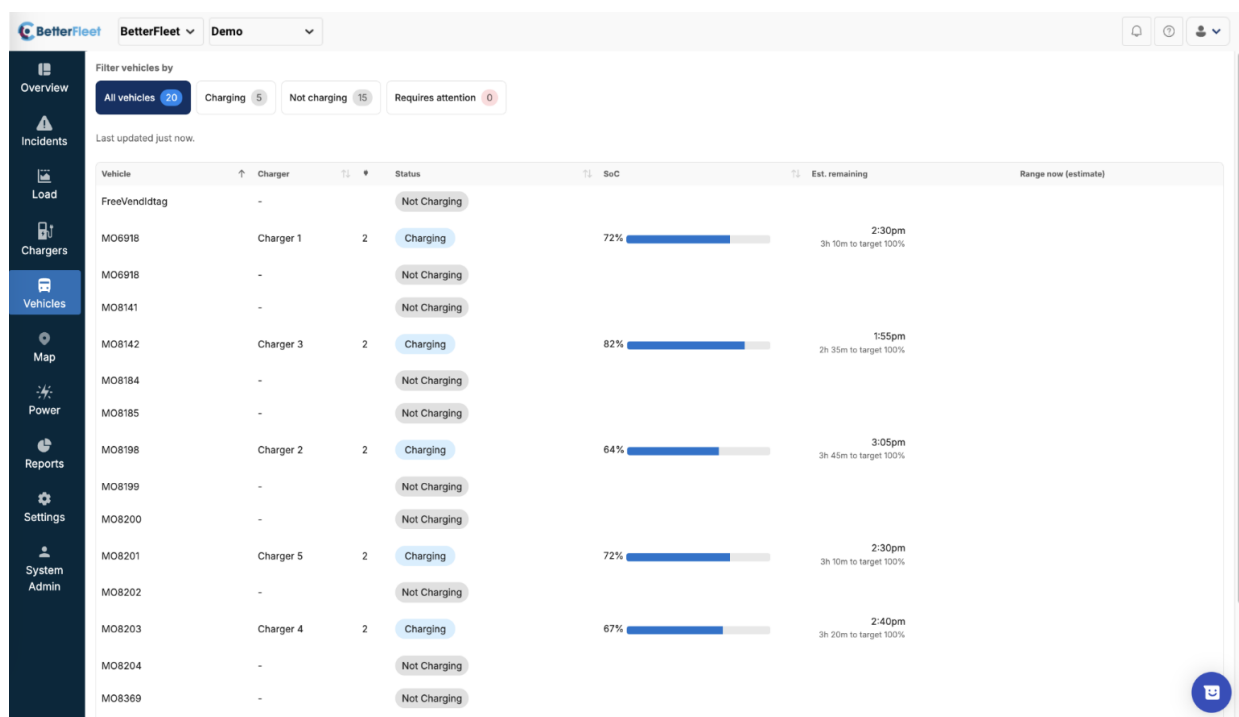
Vehicles

BetterFleet Manage includes a centralized dashboard that provides real-time visibility across both vehicles and chargers - setting it apart from many other charge management platforms. By integrating with OCPP and a wide range of telematics systems, the platform offers a full operational snapshot, including the State of Charge (SoC) of vehicles either parked in the depot or en route, along with their real-time location while in transit.

The Vehicles page gives users a focused view of fleet readiness at the selected depot. Vehicles are displayed in a sortable list, with custom filters available to streamline monitoring. If a Target SoC has been set for a vehicle, a black line appears on the SoC bar to indicate the target threshold, along with the estimated time remaining to reach it. This enables operators to assess whether vehicles will be ready for dispatch on schedule.

Fleet managers can also quickly identify vehicles with low SoC that aren't plugged in, helping to avoid operational delays. Alerts are customizable and can be configured to flag issues like charging inactivity or missed thresholds. A historical log of charging events - by vehicle or charger - includes session duration, energy delivered (kWh), number of sessions, and SoC data.

By linking data from otherwise disconnected systems, BetterFleet provides a consolidated view that enables smarter, more proactive fleet management.



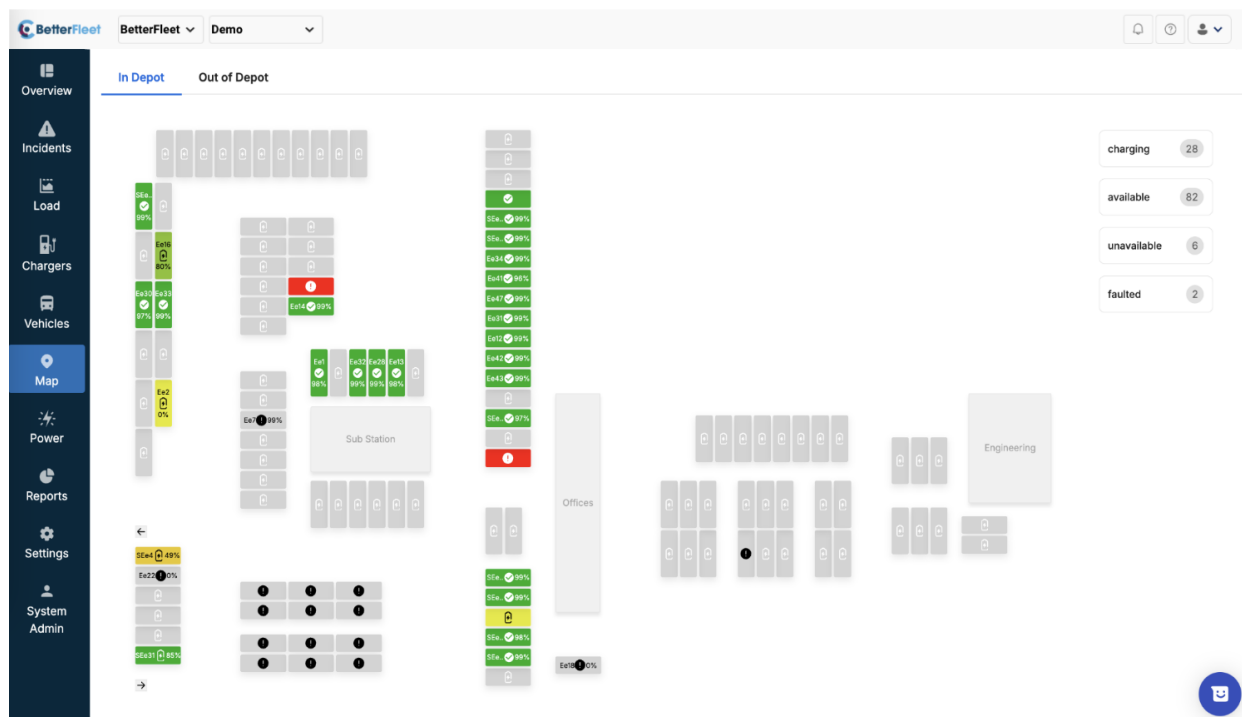


Map View - In Depot

The In-Depot View in BetterFleet Manage offers a real-time visual representation of vehicle and charger activity within the depot. This interactive interface mirrors the actual depot layout, including parking spaces, charging bays, and operational zones, providing fleet managers with a clear and accurate overview of day-to-day operations.

Hovering over a parking space or charging bay reveals key details, such as the charger ID, its current status (e.g., active, faulted, or offline), and information about the connected vehicle, including vehicle ID and current State of Charge (SoC). The display also shows critical charging data, such as allocated power and rated power capacity, allowing users to quickly assess how efficiently each charger is operating.

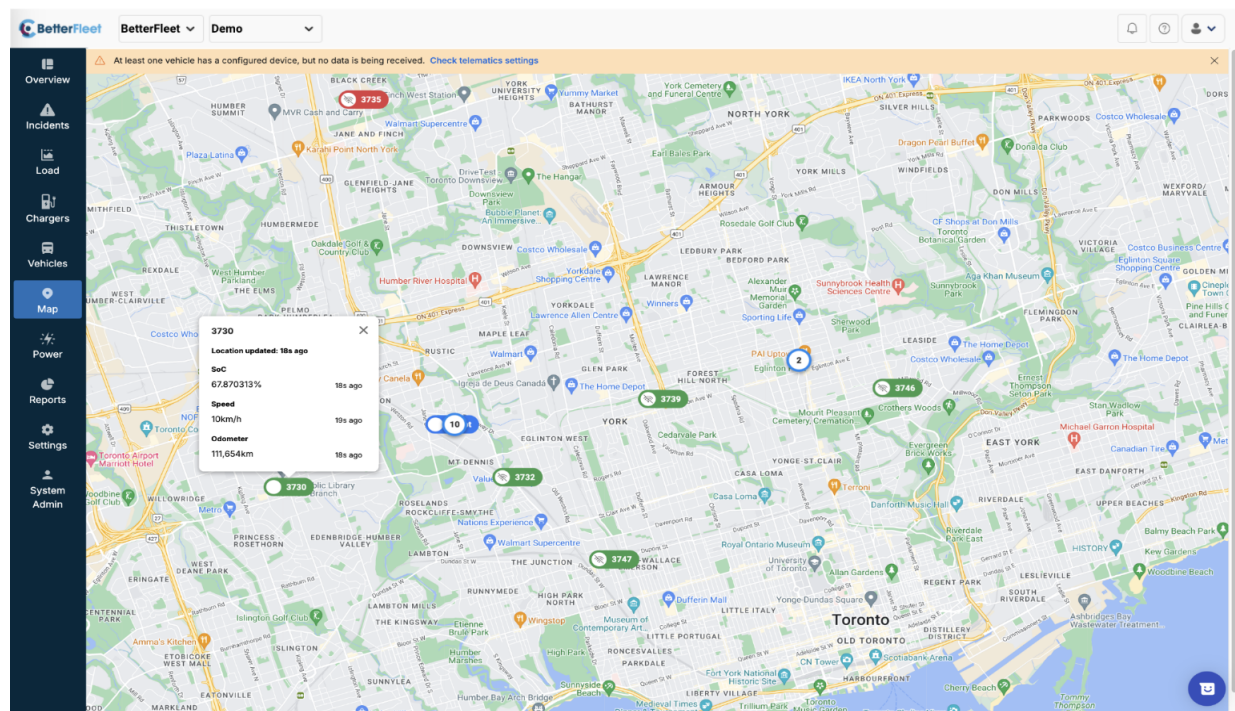
This view supports real-time monitoring of depot performance, helping operators track vehicle readiness, identify charging issues, and make informed decisions to keep fleet operations running smoothly.





Map View - Out of Depot

BetterFleet Manage includes a real-time map view that displays the current location and operational status of vehicles equipped with supported telematics systems. This feature is accessible via the Map menu in the left-hand navigation and centres on the selected depot.



Each vehicle is shown on the map with a colour-coded tag representing its SoC, making it easy to identify readiness at a glance:

- **Green:** SoC above 50%
- **Orange:** SoC between 25% and 50%
- **Red:** SoC below 25%
- **Blue:** SoC data pending/yet to be received

Hovering over a vehicle displays its ID, odometer reading, and current SoC. Clicking on a vehicle provides additional data, including speed and the timestamp of the most recent update. If a vehicle does not appear on the map, it typically means its telematics system has not yet been configured.

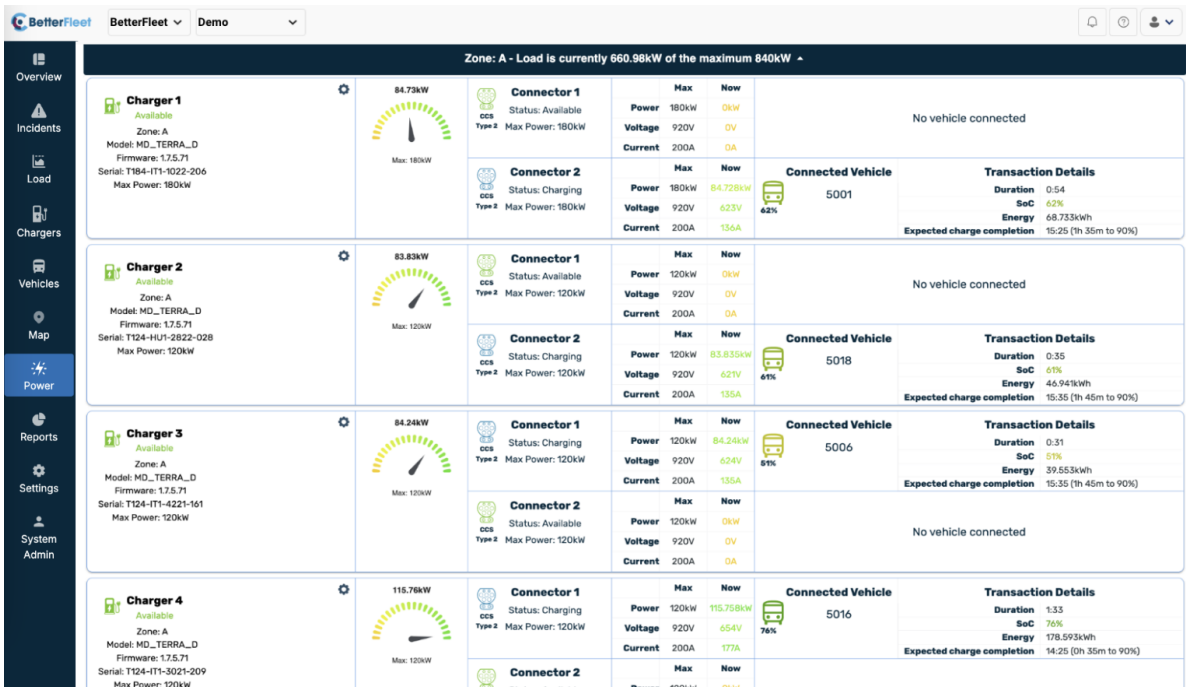
Navigation is intuitive - users can zoom using the mouse scroll wheel or keyboard shortcuts, and pan across the map using arrow keys. When zoomed out, vehicle markers are grouped with a count to simplify large fleet views. Zooming in reveals individual vehicle locations.

This map-based functionality enables live operational oversight, helping fleet managers monitor vehicle availability, quickly identify charging needs, and proactively address any issues that could impact fleet performance.



Power

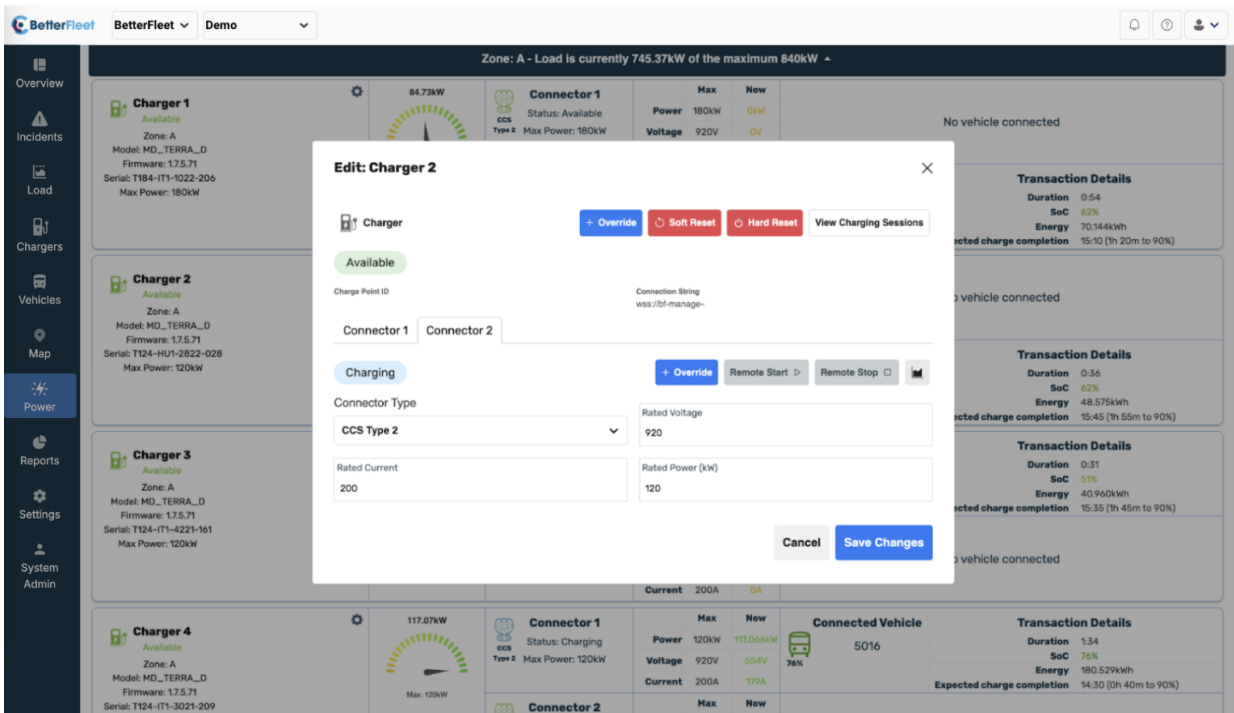
The Power tab in BetterFleet Manage provides a live snapshot of energy use across the depot. Accessible from the left-hand menu, this view lists all configured zones for the selected depot and shows the current power output for each one. Zones can be collapsed or expanded to focus on specific areas as needed.



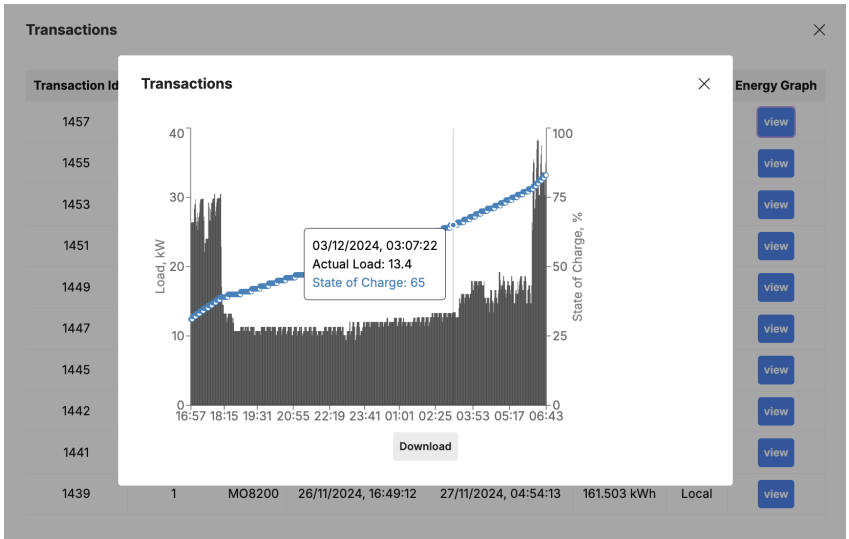
This view enables users to see at a glance:

- **Connected Vehicle Readiness for Dispatch:** Real-time State of Charge (SoC) of each connected vehicle.
- **Charger Status:** Current status of all chargers, including quick identification of any faulted or offline chargers.
- **Connector Status:** Real-time power, current, and voltage for each connector.
- **Charge Load:** Detailed charge load information by vehicle, charger, and zone.
- **Charging Session Duration:** Real-time monitoring of how long each session has been running.

Clicking the gear icon next to a charger brings up detailed charger information, including operational metrics and configuration settings. This detail is also accessible through the Chargers tab in the main navigation.



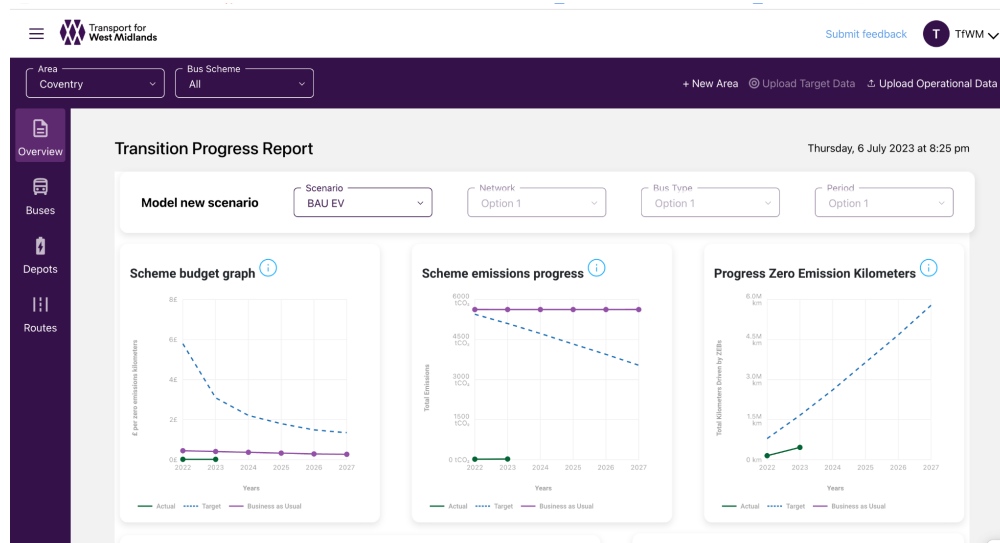
BetterFleet also offers real-time data visualizations that show both individual charger loads and aggregated depot-level energy use. Where available, this includes data from onsite utility meters, giving operators a full picture of demand and capacity. Users can select a specific day using the Chart Start Date picker or choose Live Data to view trends from the past 24 hours. As per the below image, all data shown in this view is exportable in common formats for reporting, analysis, or system integration.





Data Collection and Reporting

BetterFleet Manage is designed around the principles of granular data collection and open data access. To support operational, financial, and environmental performance, the platform collects data from a wide range of sources - vehicles, chargers, power meters, scheduling systems, and distributed energy resources. BetterFleet is vendor-agnostic and has integrated with a broad range of telematics providers, charger manufacturers, metering devices, and scheduling platforms across global deployments.



Our reporting approach is focused on delivering actionable insights in the most effective format for each user. In some cases, this means generating reports directly within the BetterFleet platform. In others, it means exporting data or integrating with third-party systems where analysis or decision-making takes place. From a reporting perspective, this led to a reporting architecture around:

- Vehicle efficiency
- Charger performance, usage, and issues
- Energy efficiency across the system
- Environmental sustainability metrics
- Transition progress
- Dispatch efficiency and issues
- Battery condition
- Detailed trend reports and trends about transactions
- Corrupted transactions and maintenance

Data is available as an Excel export (.csv) and API call. In addition to operational reporting, we implement data collection and storage to enable machine learning as significant volumes of data are collected to start to implement predictive optimizations in planning and management.



System Support

As a charge management platform that interacts with chargers, vehicles, on-site electrical systems, and even the grid, BetterFleet Manage often becomes the first point of contact for Level 1 support. To clearly define our standard platform support and available optional services, the following outlines our support tiers, response expectations, and escalation procedures.

Response and Resolution Targets

Severity Level	Description	Target Response	Target Resolution
1. Outage	SaaS server down	Immediate	1 day
2. Critical	System malfunction with operational impact	Within 4 hours	2 days
3. Urgent	System malfunction without operational impact	Within 2 days	7 days
4. Important	Service performance issue reducing timeliness of system use	Within 3 days	Within 9 days

Support Packages

BetterFleet offers three support tiers tailored to meet different operational needs, enabling you to choose the level of support that best meets your requirements. All packages are available with optional 24/7 coverage.

Service Level	BetterFleet Support Tier		
	Basic	Plus	Premium
99.9% Uptime Guarantee	✓	✓	✓
Platform Support	✓	✓	✓
Triage and Troubleshooting	-	✓	✓
Onsite Support	-	-	✓
24/7 Support	Optional		

1. CMS Only

Designed for: Smaller fleet operations or those with less frequent scheduling, where system issues can be resolved without immediate disruption to operations.

Inclusions:

- Response within 1 hour and resolution within 1 day for critical outages.
- 99.9% uptime guarantee with service credits if unmet.
- Business hours coverage (optional 24/7 support available).



2. CMS Plus

Designed for: Growing fleets or those experiencing increases in service demand and requiring added troubleshooting support.

Inclusions:

- All CMS only features.
- Remote triage and troubleshooting of issues between chargers, buses, or other depot equipment.
- 1-hour response and 1-day resolution for high-priority issues.
- Available during business hours or 24/7.

3. CMS Premium

Designed for: High-demand operations like public transit systems, where downtime can significantly affect public services.

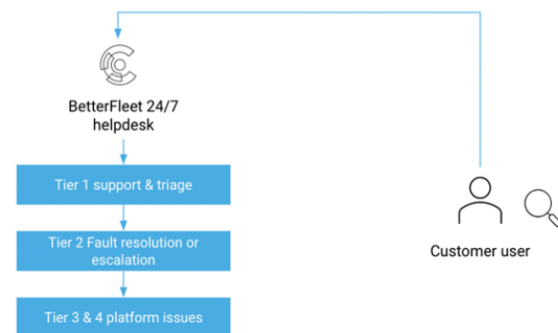
Inclusions:

- All CMS Plus features.
- Onsite support mobilized within 2 days if remote resolution is not possible.
- BetterFleet or a contracted technician will attend site to assist with troubleshooting.
- Representation to third-party OEMs (e.g., charger or bus providers) if needed.

Optional: 24/7 Technical Operation and Active Monitoring

To enhance each of our support packages, BetterFleet provides an optional 24/7 support service, ensuring round-the-clock assistance for urgent needs.

This service operates on a structured triage process where issues related to network layers are quickly escalated to customer success team members who specialize in electrical engineering and communications networks, or to the development team for software-related issues.



A dedicated 24/7 helpdesk, if requested, offers continuous software support. Staff trained in issue triage are available at all hours to receive initial calls, assess the problem, and either escalate or resolve the issue based on its complexity and impact on operations.



Support requests fall into the following categories:

- Issue with the software - software not available
- Issue with the software - potential malfunction/bug
- CMS not able to communicate with charger - charger related
- CMS not able to communicate with charger - network related

The first two issues would not require on-site support and would be escalated to the software team to resolve depending on the impact of the issue (i.e. whether it was impacting operations or just an issue making it more difficult to use the system).

Unique to the CMS Premium package, if initial triage determines that remote resolution is not possible, BetterFleet will mobilize our local Customer Success Manager to attend your site to perform additional troubleshooting to determine the root cause of the issue and provide advice on corrective steps if the cause of the problem is outside of BetterFleet's control (i.e. charger issue or vehicle issue, not a BetterFleet software issue). Additionally, we are also pleased to act as your representative and contact the charger or vehicle OEM on your behalf to assist with issue resolution.

Charging Interruptions & Remote Recovery

BetterFleet uses a structured failover and alerting framework to detect, escalate, and respond to charger issues:

- Built-in internal failover modes at all OCPP layers.
- Translating error codes to unified alert types for consistency across the UI.
- Customisable alerts by user role and preferred channel (SMS, email, API).
- Automated escalations when thresholds are met.

In many cases, chargers can be safely restarted remotely to recover from errors. If supported by the hardware, BetterFleet enables remote soft and hard resets directly through the platform interface.



Hosting and System Availability

BetterFleet Manage is delivered as a Software-as-a-Service (SaaS) platform that runs in any modern web browser, with no need for client-side installation. All system components are hosted in the cloud and locally accessible, ensuring flexible, secure access for users.

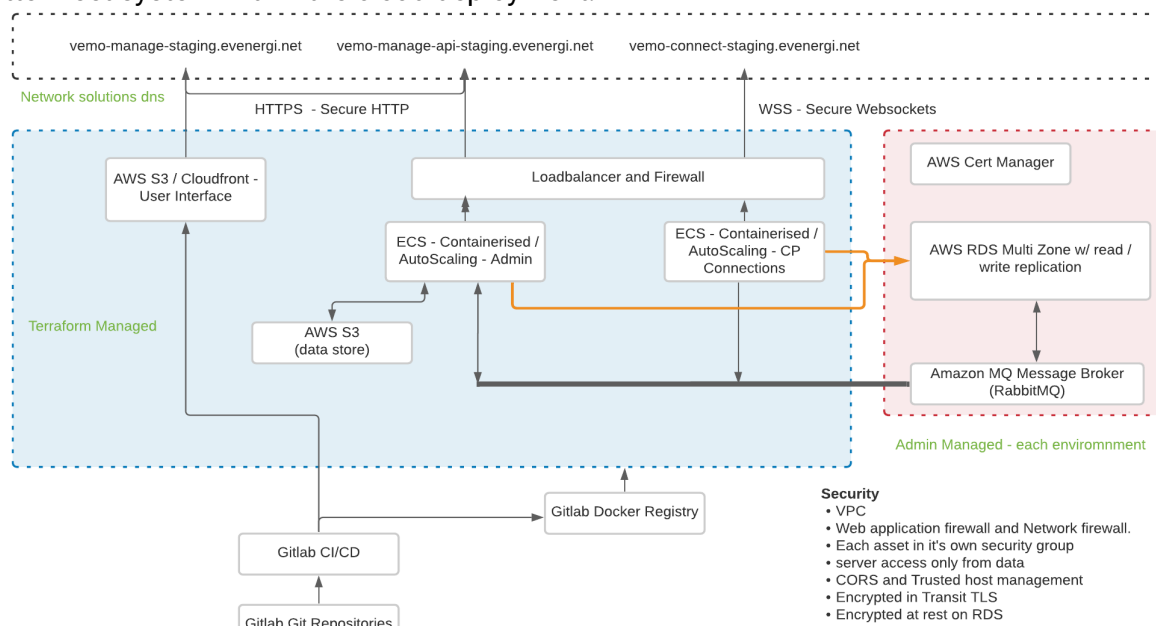
In a cloud-based deployment, BetterFleet Manage operates on Amazon Web Services (AWS), leveraging its scalable infrastructure to ensure high availability, redundancy, and resilience. All communication between services and databases is encrypted and transmitted using HTTPS to maintain data integrity and security.

The platform uses Open Charge Point Protocol (OCPP) to control and communicate with connected chargers, ensuring interoperability across a wide range of hardware manufacturers. For communications with local IoT devices (such as power meters or energy controllers), BetterFleet uses the lightweight and reliable MQTT protocol.

In the event of a network outage, chargers automatically enter a safe operating state, using pre-configured load limits until connectivity is restored. This ensures charging operations continue safely without exceeding site electrical capacity. To provide additional protection against service disruption, a local controller (BetterFleet IoT Hub) is deployed on-site. This device enables continued operations even when the connection to the cloud is temporarily lost.

BetterFleet's microservices-based architecture allows the platform to scale seamlessly, maintain high transaction speeds, and ensure secure data processing. This modular approach also enables faster updates, easier maintenance, and enhanced fault tolerance across components.

A visual system architecture diagram is included below, showing how the BetterFleet environment is structured. Components highlighted in blue represent elements of the BetterFleet system within the cloud deployment.





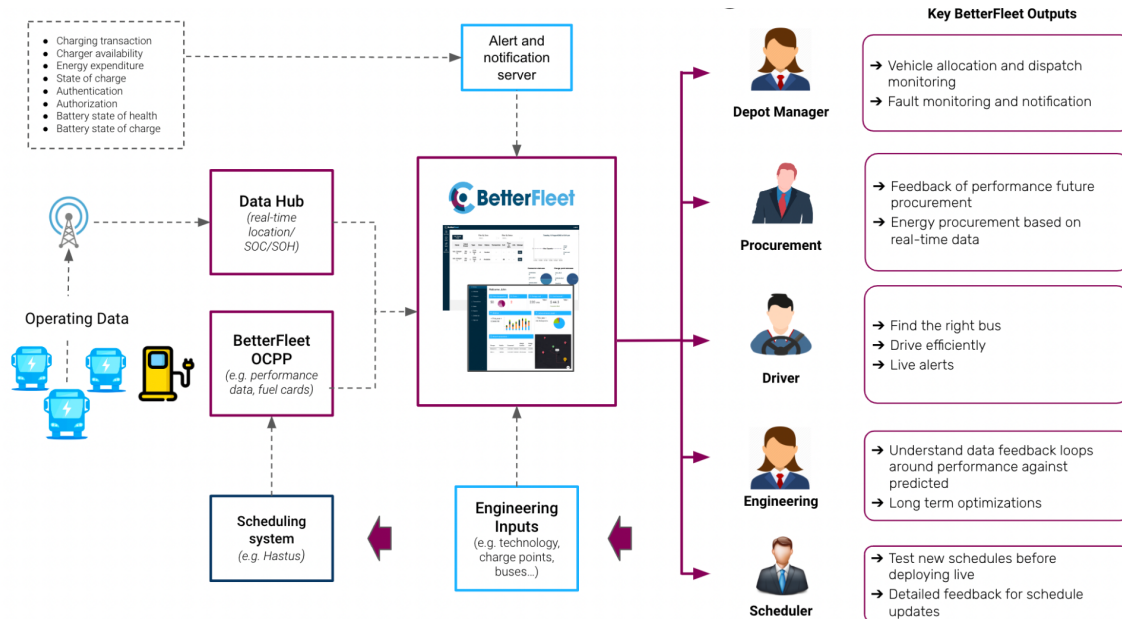
System Architecture

Unlike many charge management systems that evolved from traditional energy management tools, BetterFleet Manage was purpose-built for fleet operators. It is the result of more than five years of dedicated research and development focused on the complex challenges that fleets face when transitioning to zero-emission vehicles.

At the core of our platform is a digital twin framework—a powerful simulation engine that models the full operational environment of an electric fleet. This includes vehicles, batteries, chargers, depot infrastructure, and real-world external factors such as weather conditions, terrain, and driver behaviour. The system is designed with a multi-physics architecture, allowing it to simulate and optimize across more than 100 variables that influence performance, reliability, and energy use.

This foundation enables BetterFleet to go beyond reactive energy management and provide proactive, predictive insights that help fleet operators make smarter, data-driven decisions.

The following diagram provides a high-level view of BetterFleet's system architecture, highlighting the role of digital twin modelling within our broader platform.



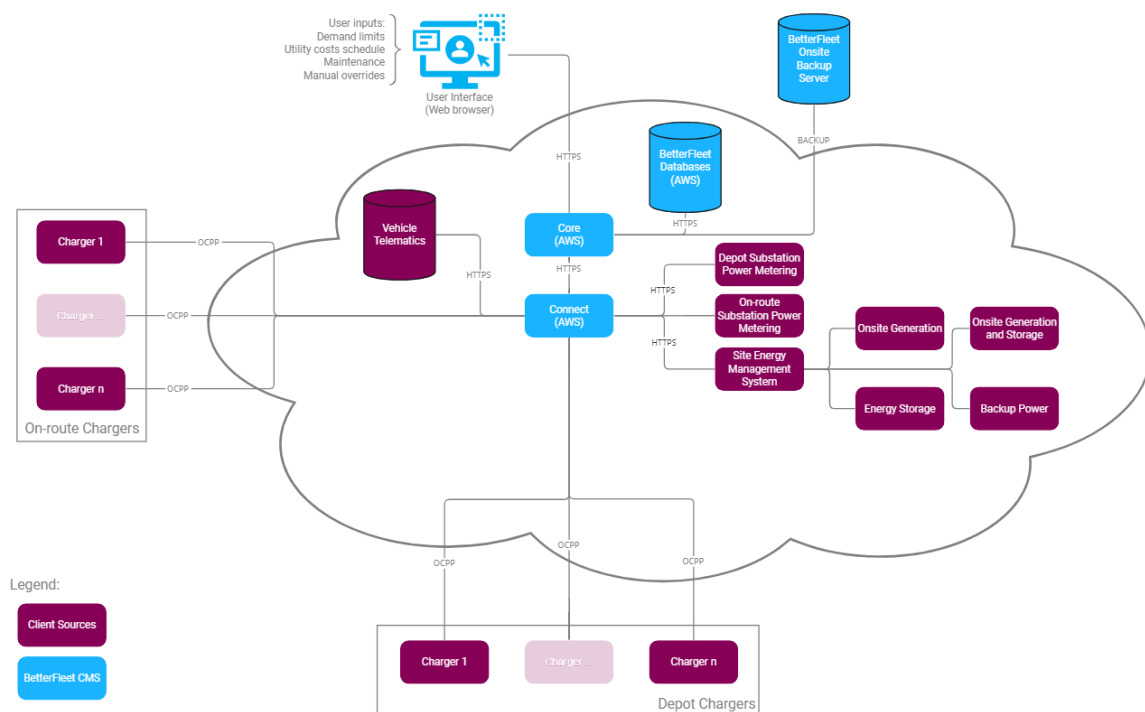


Technical Environment

Much of the above architecture is focused on the algorithms that power the system, but in addition to this we use state-of-the-art architectures to deliver user interfaces and data transfer as outlined below.

We utilize a unique, balanced approach to service architecture, which combines the adaptability of microservices with the simplicity of monolithic structures. This allows us to rapidly and reliably implement new features, ensuring our product evolves with your business needs. Using containerized deployment, we ensure our service is portable, efficient, and consistently reliable across environments. Our use of Amazon CloudFront ensures quick and secure delivery of content globally, resulting in a seamless user experience.

BetterFleet is designed with an API-first approach, which guarantees easy integration with your existing systems and opens up possibilities for future enhancements.





Open API Architecture

In a rapidly evolving operating environment, it's essential to work with systems that are open and adaptable. BetterFleet is built with an open API architecture, allowing operators to control how and where data and features are used across their ecosystem.

Our platform is designed to support flexible integrations - whether that means pulling real-time data from BetterFleet into in-vehicle displays or pushing data into external management and reporting tools. These integrations are automated and do not require manual intervention, supporting efficient workflows and consistent data access.

We implement the OpenAPI Specification using FastAPI as our standard, and in some cases GraphQL, to ensure our APIs are clearly documented and easy to work with. API endpoints are secured and require authentication via OAuth or API keys, ensuring data access is safe, traceable, and controlled.

System Security

At BetterFleet, security is integral to how we build and operate our platform. We have achieved SOC 2 compliance through a full audit of our policies and processes, demonstrating our commitment to high standards in security, availability, processing integrity, confidentiality, and privacy.



This certification aligns closely with broader quality, environmental, and safety management standards, reinforcing the reliability of our systems for critical transit and fleet operations.

All components of the BetterFleet platform undergo regular penetration testing to identify and mitigate vulnerabilities. We maintain detailed security protocols and policies, which are available upon request.

Transport Layer Security (TLS) 1.3 is used to encrypt all data transfers between site infrastructure and the BetterFleet cloud environment. In addition, data at rest is encrypted, ensuring a secure and compliant environment for all operational and customer data.



Standards Compliance

BetterFleet Manage is built to comply with key current and emerging industry standards, ensuring long-term scalability, interoperability, and readiness for future integrations. This standards-based approach supports a wide range of use cases - from basic charge control to advanced vehicle integration - and aligns with international best practices.

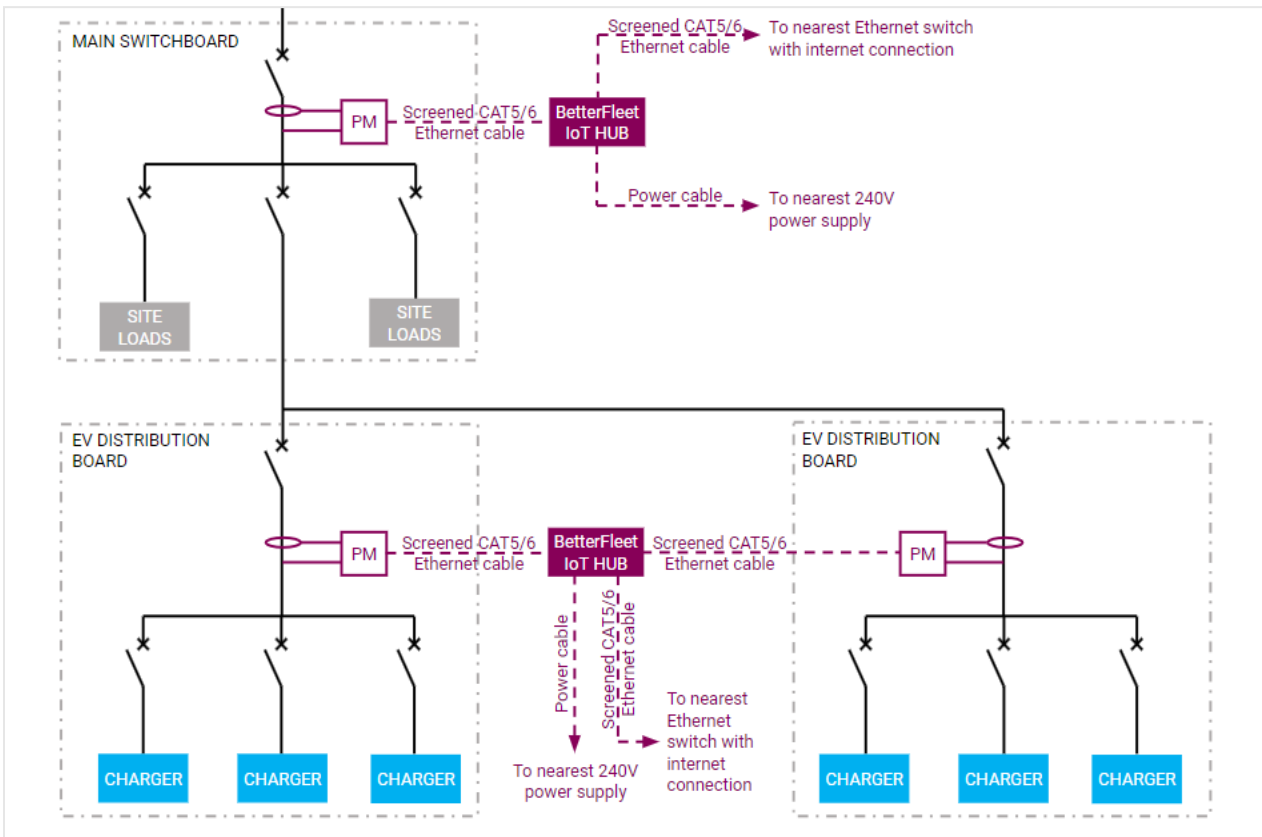
Below is an overview of the core standards supported by BetterFleet:

Standard	Priority	Purpose	Status
OCPP 1.6J	Essential	Enables communication between the charge management system (CMS) and the charger for functions such as charger control, smart charging, and authorisation.	Supported
OCPP 2.0.1	High	Newer version of OCPP. Enhances device monitoring, security, and supports ISO 15118-based plug-and-charge and smart charging features.	Supported
VDV 261	High	Enables vehicle pre-conditioning (e.g., heating/cooling before departure).	Supported
VDV 463	High	Defines the interface between the CMS and upstream systems like scheduling and depot management platforms.	Supported
ISO 15118	Mid	Standard for communication between vehicle and charging station. Includes support for bidirectional charging, plug-and-charge, and wireless charging.	Partially supported
IEC 60870-5-104	Mid	Used for exchanging data across devices in power systems, commonly within SCADA environments. Applicable to grid integration and power system monitoring.	Partially supported



Onsite Hardware

If required for site operations, electricity meters and the BetterFleet IoT Hub must be installed by the site's electrical contractor. The equipment is compact and designed for straightforward installation. An example installation diagram is provided below.



Notes:

- 1) This is a typical design, provided to guide site-specific installation planning. Actual configurations may vary depending on site conditions.
- 2) Power meters, associated current transformers (CTs), and BetterFleet IoT Hubs are supplied by BetterFleet. Installation - including all cabling - is typically completed by others.
- 3) CTs are clip-on Rogowski coils, offering easy installation. The standard coil length is 450 mm, but other lengths are available upon request.
- 4) One BetterFleet IoT Hub is required for every two power meters.
- 5) Each IoT Hub is housed in a wall-mounted steel enclosure with dimensions: 300 mm (H) x 300 mm (W) x 210 mm (D).



Hardware Integrations

The BetterFleet platform is fully hardware agnostic and has already been integrated with most leading charger manufacturers in the market. Our team works closely with suppliers around the world and conducts pre-integration testing to ensure that when we connect to your selected hardware, most compatibility issues have already been addressed. If you decide to change charger suppliers in the future, we're prepared to support the transition with minimal disruption.

As a central system for EV and charger management, BetterFleet is built to interface seamlessly with a range of operational systems - including onboard vehicle telematics, scheduling tools, site metering infrastructure, and distributed energy resources such as solar and battery storage.

We continue to expand our hardware integrations regularly to support evolving client needs and maintain flexibility across all deployment environments.

