

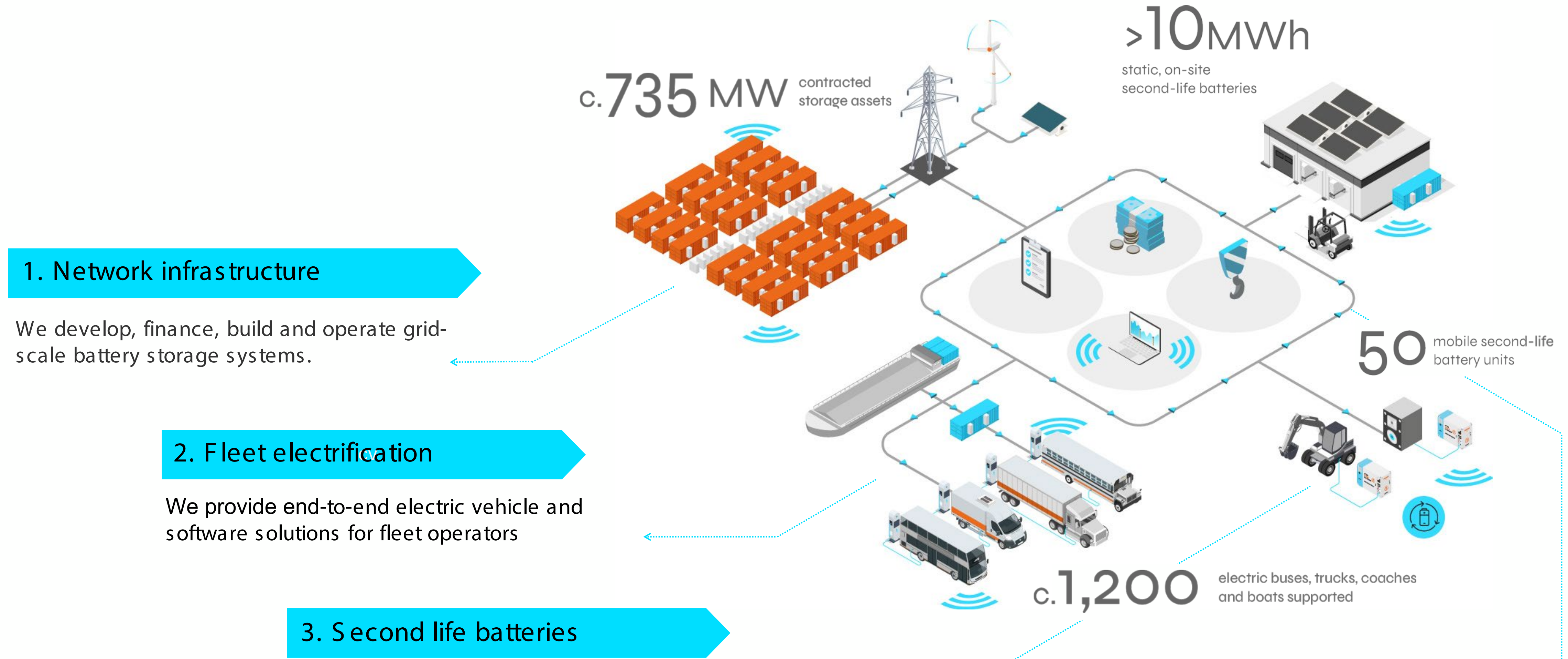
+ Transitioning
to ZEB
Summit –

ZENOBĚ





Zenobē at a glance



1. Network infrastructure

We develop, finance, build and operate grid-scale battery storage systems.

2. Fleet electrification

We provide end-to-end electric vehicle and software solutions for fleet operators

3. Second life batteries

We support the circular economy of batteries – upcycling, reuse, and recycling.

We also offer financing, operational support, software management and construction to help de-risk our battery storage and fleet electrification offerings.

Ivanhoe depot: First EV depot in Victoria

Background:

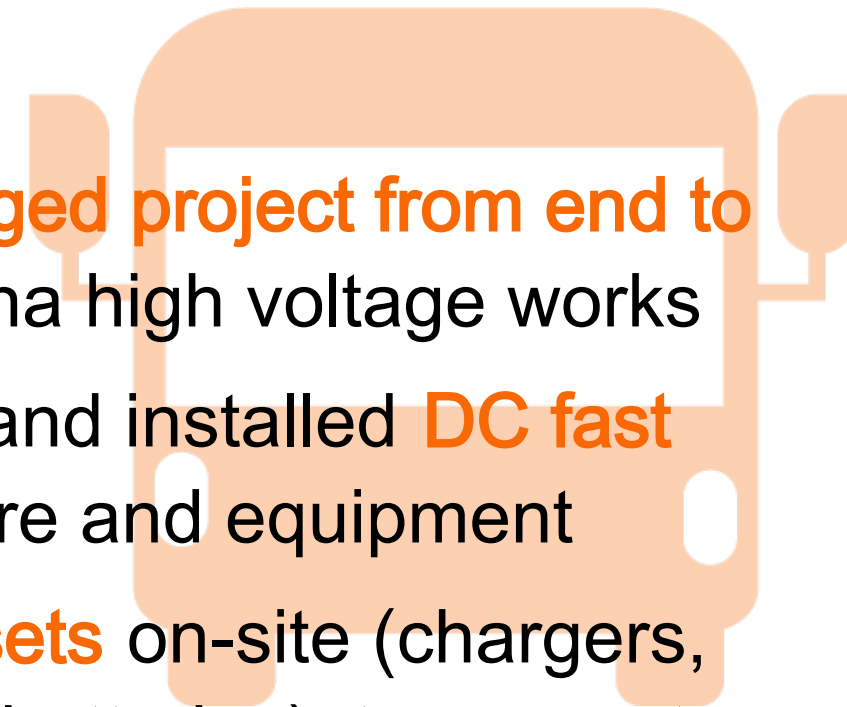
First electrified large scale bus depot Victoria, requiring:

- Victoria’s first all electric bus depot
- Total 27 e-buses at Ivanhoe Depot in Melbourne
- Project go-live 2023 & O&M three years

CATEGORY	REQUIREMENTS
Bus Type	27 xVolgren/ BYD
No. of Chargers	14 x DC 150kW- dual gun - Tritium
Software	Zenobē Hekaton
Zenobē Service	Design & Build, Software +O&M

Solution:

- Designed and **managed project from end to end**, including Jemena high voltage works
- Procured, supplied, and installed **DC fast charging** infrastructure and equipment
- **Integrated all EV assets** on-site (chargers, grid, telematics, bus batteries) to guarantee compatibility and efficient communication
- Managing infrastructure, charging, and fleet via our **e-fleet management software** and provision of O&M package.



Success:

3+ year contract with 27 EV buses, with scalability available and review of continuous improvement initiatives

“Victorians deserve a great public transport system – one that’s clean, reliable and sustainable. That’s why we’re rolling out more electric buses, and work on the state’s first all-electric bus depot will soon be complete.”

– Premier of Victoria, Daniel Andrews

*(at the time)

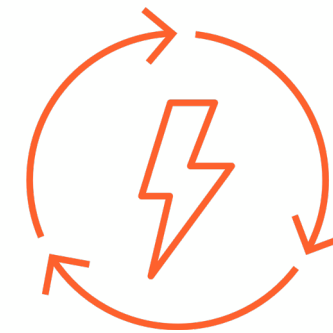


Integrating EV assets- challenges



New & Unknown Tech

Electrifying sites exposes operators to new / unknown risks associated with EV assets and technologies



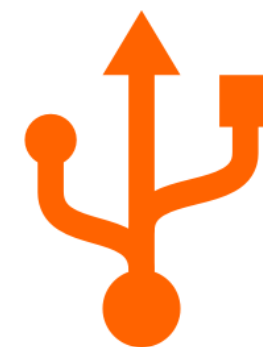
Asset Life

Bus assets are expected to last 15 + years, meaning ZEB infra needs to be guaranteed over that lifetime



OEMs Regulations

Each OEM has their own interpretation of technical standards and regulations (DIN, ISO), leading to different charger / battery signals, protocols & configurations



OCPP Limitations

Each charger manufacturer has their own OCPP limitations, limiting their functionality and ability to integrate / perform in a dynamic charging environment



Experience

- ✓ Partnerships and knowledge of integrating 30+ different OEMs
- ✓ Solutions designed and tailored to meet the needs specific to the region / environment
- ✓ Complete compatibility testing for all EV assets, overcoming OCPP limitations to communicate and operate in a complex environment
- ✓ 10-20 year contractual guarantees for all EV assets

Charging Performance Contracts

Design, build and maintain charging infrastructure, as well as providing financing, O&M and warranty on equipment for the duration of the contract including charger replacement costs.



Operational guarantees

We guarantee that every bus is sufficiently charged to complete required routes.



Optimised battery health

We design, optimise and monitor the charging infrastructure to maximise the health of the battery.



Smart charging

Our software optimises charging in a cost & operationally efficient manner.



Software for fleet management

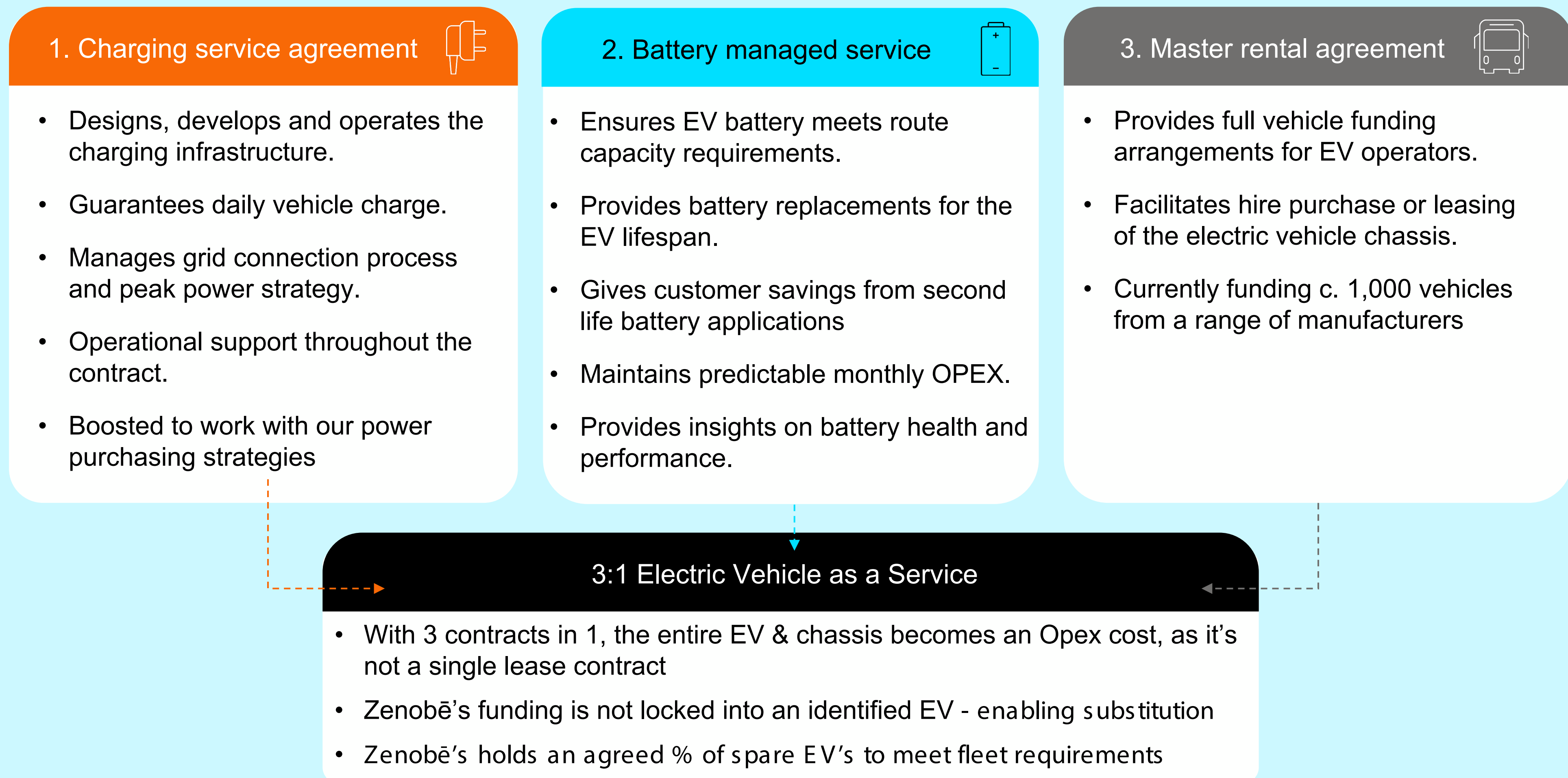
Access driver performance data, real-time vehicle & battery health monitoring to optimise operations.





An end-to-end **fully financed & managed** service.

Full turnkey offer is structured around three contracts which spread financing costs for charging infrastructure, battery, battery replacement, and vehicle across the life of the contract.



A Zenobē turnkey solution

The start of an e-transition. Holistic asset management possible via turnkey, which considers implications beyond commissioning ((incl. new technology, obsolescence / performance risks, out of warranty assets)

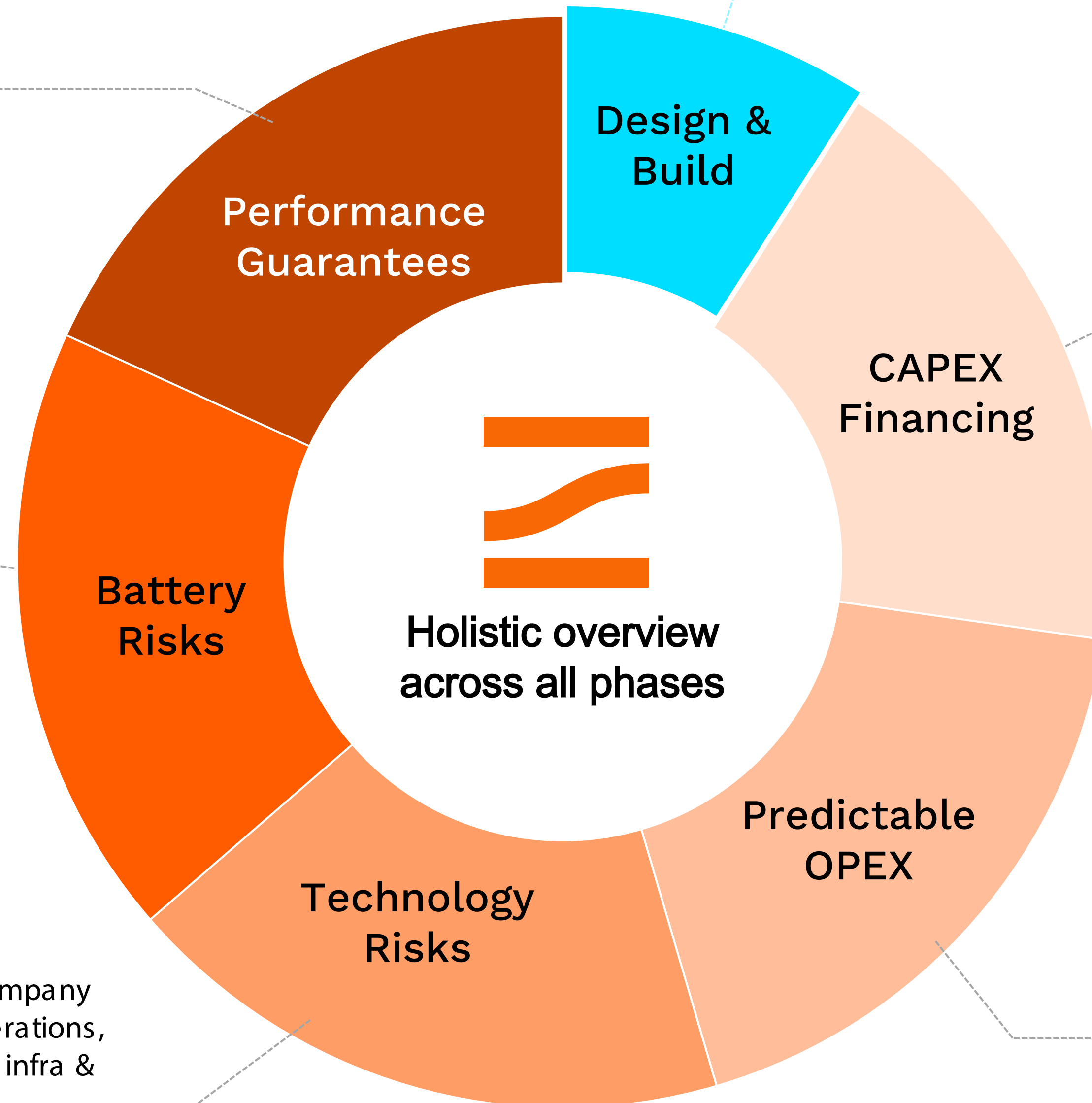
Performance guarantees on core assets (charging infrastructure & ZEB batteries) over a 15-year period

Incl. battery replacement risk, a key risk across an asset earmarked for a 20 year + life

Financing of all upfront & ongoing capital works over a 15-year period

Flat payment profile, no lumpy unpredictable upfront and replacement CAPEX. Only predictable operating payments

A single 15-year point of contact, with a company who can manage tech risks across ZEB operations, ensure ongoing interoperability of charging infra & multiple bus/battery OEMs



Zenobē's Innovation Centre



Technology Agnostic

Zenobē's solutions involve integrating all EVs, battery and chargers. From e-vans to double decker e-buses, Zenobē can identify the most cost effective and optimal solution based on our clients' operational needs.

Site-specific

Zenobē works closely with operators to identify site-specific requirements, such as limited grid capacity, dead miles or battery degradation concerns. Our solution encompasses scope, depot viability, commission, integration & decommissioning of equipment.

Real-life Innovation

The centre simulates the intricacies of depot charging, improves efficiency, enables advanced tests, research and integration with new hardware and software to charge various buses, trucks, vans and cars at any one time.



VIC INNOVATION CENTRE

Projected to go-live in 2024

Our team of hardware / software managers and engineers test and validate charging equipment / EV assets prior to deployment.

The centre resolves key issues in electrification, such as:

- OEM synchronisation to reduce integration delays due to incompatibility / communication issues
- Conducting complex and time-consuming functionality tests off-site at the facility to reduce costs associated with operational failures and provide schedule predictability

Powerskids, chargers, batteries and EVs on-site, enabling Zenobē to assess V2G charging & grid enhancement services to provide additional power required for EV charging.

Thank you

Gareth Ridge
Country Director

Zenobē Australia



Awarded **Sustainable Projects NSW Project Management Achievement Award** for Leichhardt Electrification Project & 40 EVs.



Global Investor Deal of the Year at Project Finance International Awards, recognising significant debt raised.



Zenobē & National Express won **Environmental Innovation** - 130 EVs & help to reach Coventry's aim to be UK's 1st All-Electric Bus City.



Abellio won '**Fleet Electrification Strategy of the Year**' for 100+ EVs at the Electric Vehicle Innovation & Excellence Awards.



ENERGY STORAGE AWARDS

Developer of the Year - 430MW of battery storage & 1.2GW of projects in advanced development.



Innovation category winner for projects with McGill's in Glasgow & Dundee projects, three e-sites, 68 ZEBs for COP26.

