

MacLean EV Series

Full-Fleet Electrification | EV-proven, EV-ready

OUR COMMITMENT TO MINING SAFETY AND PRODUCTIVITY RUNS DEEP.

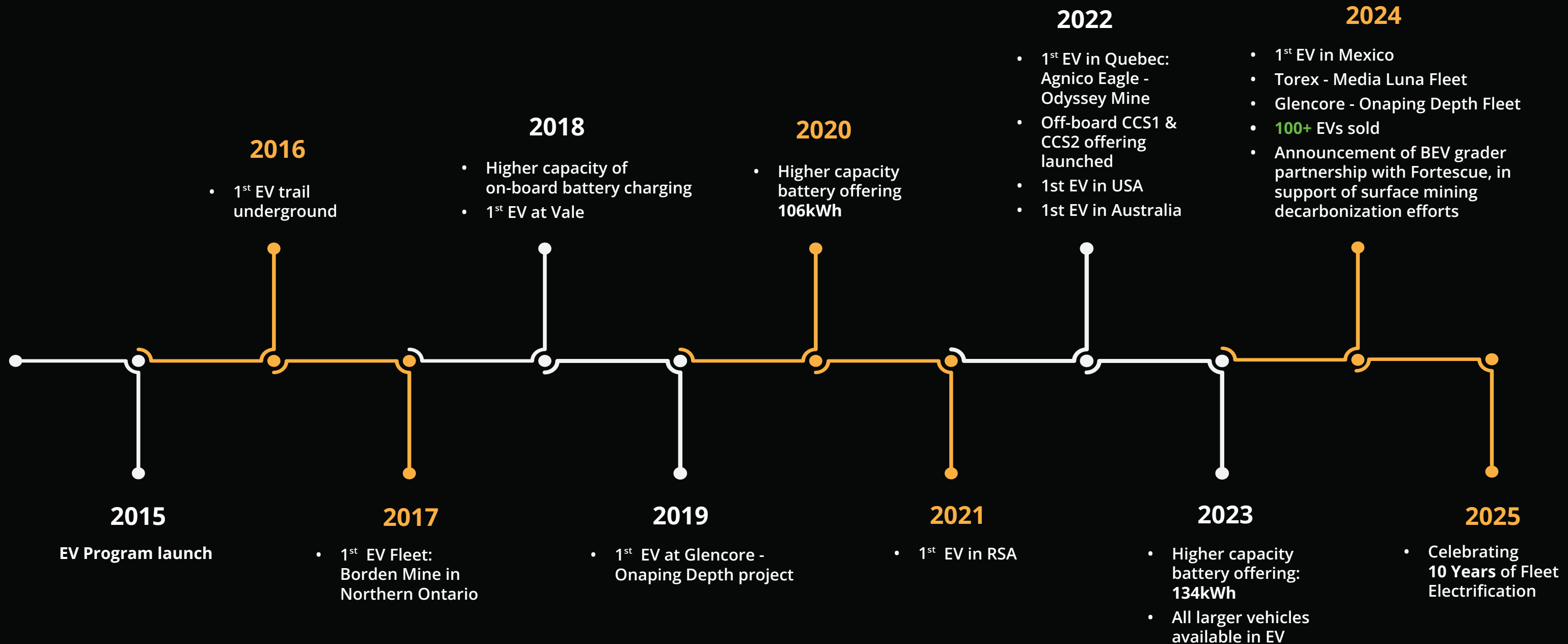
"Significant savings over the equipment lifecycle"

(MacLean customer TCO data report, 2025)

 **EVseries**
ELECTRIC VEHICLE



MacLean Fleet Electrification Program Milestones



MacLean Battery Technology in Underground Electric Vehicles

- **2015 – 92 kWh**

Our first-generation battery set the benchmark, delivering reliable performance and durability that supported the early adoption of electric vehicles in underground mining. It laid the foundation for a cleaner, more efficient future in the mining industry.

- **2020 – 106 kWh**

Smarter design, better efficiency, higher C-Rates and longer Cycle Life. A refined battery built for greater range and durability.

- **2023 – 134 kWh**

A major leap in capacity and performance with higher C-Rates while maintain a high Cycle Life — designed to meet the high-power demands of modern, battery-electric mining fleets.

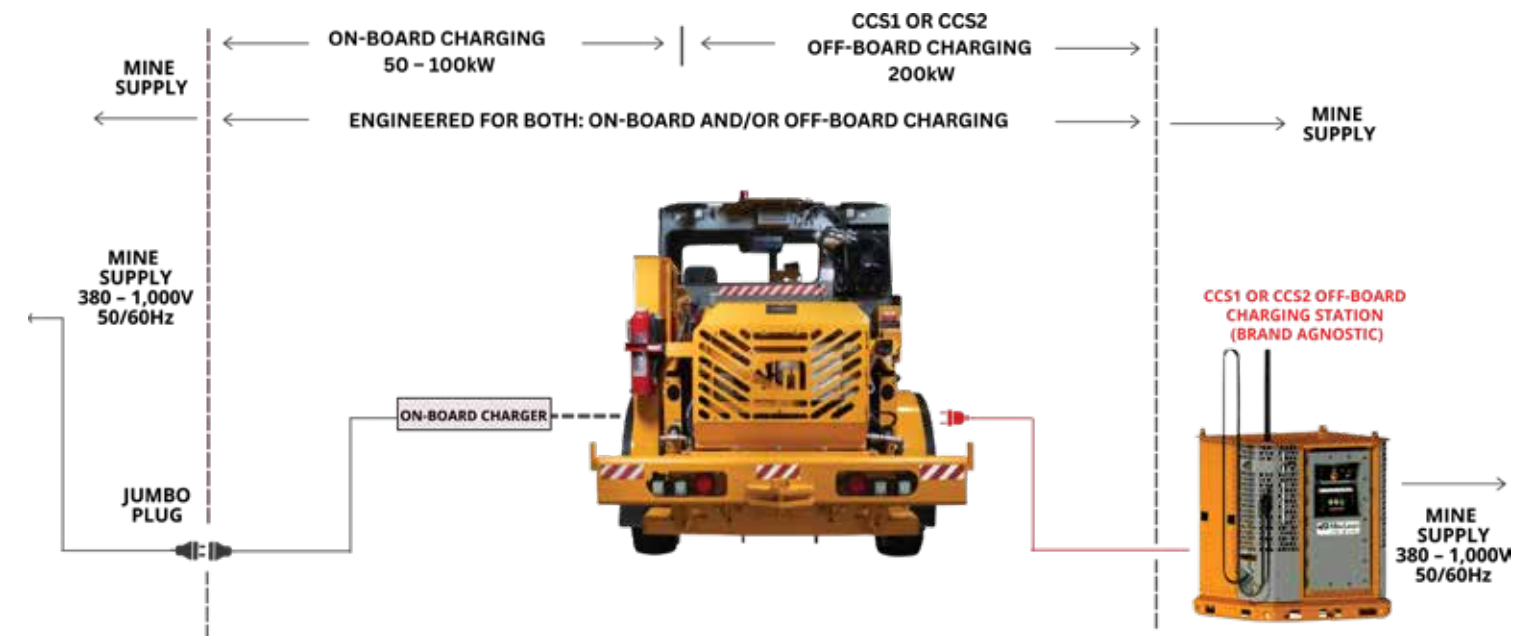
EV drive design

The MacLean approach to battery propulsion is built on giving our customers access to best-in-class battery, electric motor, charging, and vehicle analytics technology. We integrated these components into mobile underground equipment by leveraging our multi-discipline engineering expertise, hard rock mining knowledge, and custom manufacturing experience.



Charging Options Onboard/Off-Board or Both

- With these options, the batteries can be charged with the onboard chargers through a jumbo cable, or with the off-board chargers through a CCS1 or CCS2 connector.
- The charge rate depends on the capacity of the charger and the battery's capability to accept the charge. MacLean equipment can currently receive charges up to 200kW.
- The Off-Board option is particularly attractive if there is already a need for CCS1/CCS2 chargers for other equipment on the project.



Check out our BEV videos

MacLean Battery Electric Vehicles

MacLean Battery Electric Vehicles (BEVs) are transforming mining with zero-emission, high-performance equipment built for underground use. They boost safety, cut costs, and support a cleaner, more sustainable mining future with advanced battery technology.

Charging Philosophy

MacLean's battery-electric design is built around ease of use, minimal infrastructure requirements, and maximum uptime — with a charging strategy tailored to the realities of underground mining. Customers have the flexibility to choose on-board and / or off-board charging, depending on their operational needs and infrastructure.

How are we different?



No Battery Swaps Required

The battery remains onboard the equipment at all times — eliminating the need for regular battery swapping and reducing operational downtime.



Flexible On-Board Charging Options

MacLean vehicles come equipped with on-board chargers in either:

- 50 kW
- 100 kW



Low Barrier to Entry – Since 2015

Our on-board charging approach, adopted in 2015, was designed to keep things simple for our customers:

- No need for large-scale infrastructure
- Compatible with standard jumbo plugs

This means faster adoption, lower setup costs, and quicker deployment underground.



Scalable Off-Board Charging with CCS Support

For operations with growing infrastructure, MacLean offers the option to add:

- CCS1 or CCS2 receptacles
- Supports up to 200 kW fast charging
- Charger supplier agnostic
- Ideal for making the most of future-ready charging networks

Mining Smarter:

The batteries in the MacLean EV Series vehicles are made from highly recyclable materials with recycling recovery rates of over 93% with current recycling technology.



“Delivering significant annual CO₂ savings per rig”



CCS1 & CCS2 Off-Board Charger Options

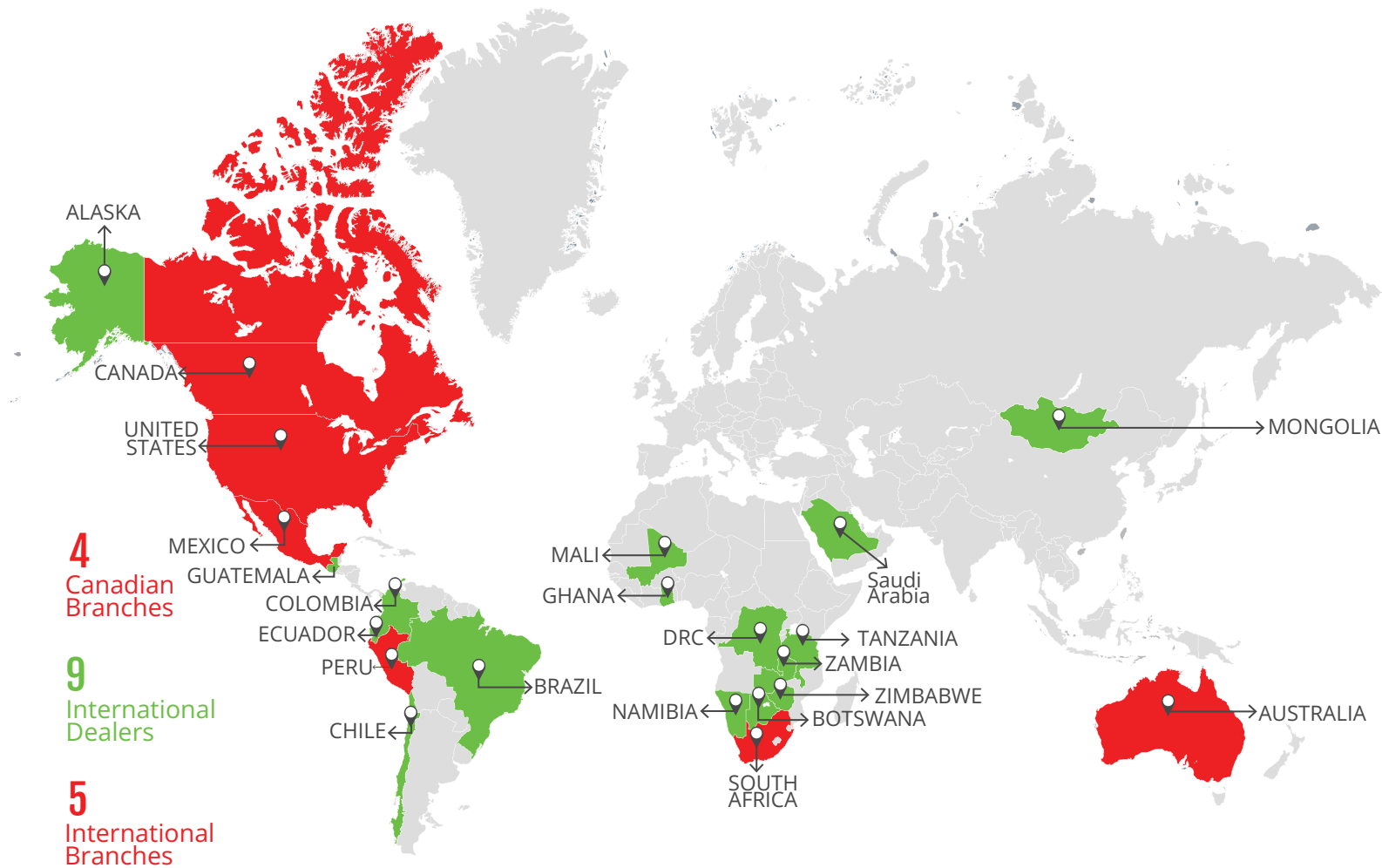
MacLean offers off-board charging with CCS1 and CCS2 compatibility, up to 200kW of DC fast charging.



CCS (Combined Charging System) plugs provide fast, reliable EV charging even in demanding underground mining environments. They enable efficient, low-emission charging for battery electric vehicles, supporting your transition to a cleaner, more sustainable operation.



MacLean Global Footprint



EV innovation across our lineup:

At MacLean, innovation is at the core of everything we do. We are proud to offer a complete fleet of battery electric mining vehicles across our entire 5 Series product line — including bolters, shotcrete sprayers and concrete transport, explosives charging, blockholers, and utility vehicles.

This groundbreaking achievement marks a major milestone in our commitment to zero-emissions underground mining. Our EV Series is not just about replacing diesel with batteries — it's about rethinking what mining fleets can do for productivity, safety, and sustainability. From reduced ventilation costs and noise pollution to improved operator comfort and air quality, the MacLean EV Series delivers performance without compromise.

We're not just electrifying equipment — we're electrifying the future of mining.

"Cleaner air underground contributes to safer, more comfortable work environment."

WHEN YOU BUY A MACLEAN MINING VEHICLE, YOU ARE FAMILY.



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 To learn more: info@macleanengineering.com



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 **MacLean**
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