

CORE

Continuous Onboard Re-Charge Environment

**Freedom to Explore
- Unlimited -**

RECHARGE EV



<https://mesgent.com>

CORE is not intended to replace home or business charging stations, nor is it intended create a new type of electric vehicle. Its purpose is to enhance that which has already been created.

-- We are not reinventing the wheel, we're just making it better.

Re-Charge the World

Our Patented Technology Enables Electric Vehicles to Charge While Driving

U.S. Patent No. 11,635,477 B2

04/25/2023

Why We Need CORE

Practical limitations inhibit transition to electric vehicles

80% of Americans Site Range Anxiety and Cost as Their Top Concerns



Range Anxiety

Charging infrastructure is limited and concentrated in urban areas. Fully-Electric and Hybrid-Electric vehicles suffer greatly from the issue of lack of sufficient charging stations and extended recharging times, that make using, much less owning an EV impractical, in comparison to modern combustion vehicles.



Cost

Electric vehicles continue to cost about \$10,000.00 more than gas-powered vehicles. For the average buyer, the increased cost to purchase an EV outweighs the perceived reduced cost of ownership, limiting EV purchases to a limited pool of buyers.



Variety

While manufacturers are starting to increase available EV options, there is still limited variety that addresses typical lifestyle needs.

<https://www.sciencedirect.com/science/article/abs/pii/S095965261934781X>

<https://www.greenbook.org/mr/insights/what-are-consumer-reactions-to-electric-vehicles/>

<https://www.sciencedirect.com/science/article/pii/S136192092200356X>



The Time Is NOW

THE NEED IS CLEAR

CORE converts mechanical rotational energy from an existing drive shaft or motor system into regulated electrical charging voltage equivalent to OEM charging sources. This voltage is delivered directly to the vehicle's existing charging architecture—allowing the battery to recharge while the system remains operational.

* Source: <https://ourworldindata.org/grapher/fossil-fuel-price-index>

** Source: <https://www.nytimes.com/2022/07/02/business/economy/gas-prices-global.html#:~:text=The%20staggering%20increase%20in%20the%20price%20of%20fuel,and%20hampering%20efforts%20to%20combat%20ruinous%20climate%20change>.

1

EV's aren't the only issue

In the Area of Marine and Aviation application, cost of ownership is very high and there's very little infrastructure.

3

Fuel Cost Volatility **

Gasoline, Diesel, and all other fossil fuels are dramatically increasing, rising from an index of 100 in 2013 to 215 in 2023. and we've seen it go higher, especially lately.

2

Energy prices impact Everything *

Staggering price increases rewire global social, political, and economic relations, around the world

4

Trends

Four trends make CORE essential now, more than ever.

1. The Inflation Reduction Act,
2. Current Emissions Regulations
3. Dependency on Foreign Oil
4. Consumer Confidence

These converging trends create an unprecedented Multi-Billion opportunity, for range-extending technology

CORE

CORE® is a **portable, onboard, continuous charging system** that produces charging-equivalent electrical voltage while a vehicle or device is in motion. It is designed to replicate the electrical conditions of an external charging station—**without drawing energy from the vehicle's main battery array (MBA)**.

In practical terms, CORE® enables electric systems to:

- Operate **while being continuously recharged**
- Achieve **5x–10x increases in operational time or range**, depending on application and usage conditions
- Reduce or eliminate dependency on stationary charging infrastructure
- Lower total cost of ownership
- Significantly reduce emissions and fossil fuel dependence

WHILE INITIALLY INTENDED FOR MEDIUM AND LONG-RANGE DRIVING AND TRANSPORTATION, CORE CAN BE APPLIED TO ANY ELECTRICAL MOTOR WITH A ROTATING SHAFT, BATTERY ARRAY, AND SUBSEQUENT CHARGING SYSTEM.

CORE enables unlimited range for any Electric Vehicle, Aircraft, Marine Vessel, or Power Generator system – while it's in use.



Simultaneously recharge a battery while in use – just like laptops and other battery-powered equipment can operate while in use.



Initially for medium and long-range transportation, can be applied to any electrical motor with a rotating shaft and battery



Adaptable to combustion type vehicles, so can be applied to existing platforms, aftermarket



Sustainable, affordable, and capable of overcoming any EV adoption barriers, by extending the range of such EV's, indefinitely

The CORE Design



Adaptable

CORE technology is designed to be integrated into current EV technology, after-market, and future designs. CORE is designed and intended to be versatile and easily adaptable.

Real-Time

Keep on driving, bypassing the Charging Stations, at malls, Businesses, and hotels.

Autonomous

Fully self-contained, and capable of providing charging voltages to the battery, while in operation.

Simple

CORE technology is designed to be easily integrated with just a few connections. the technology was designed that if any part fails, it would not interfere with the **Normal** operations of the vehicle.

The CORE Difference

What sets CORE apart
From the competition

No Plug-In Required

Core reuses its own energy, created as the Engine operates, and doesn't need any form of recharging or plug in, while stationary. The chargeability extends the life of the battery. CORE will not alter the vehicle behavior itself, So If at any point CORE stops working, the Vehicle will revert back to its prior original Operation mode.

Unlimited Range

CORE recharges itself 100% of the time, eliminating range anxiety and the need for Charging infrastructure. This is a novel Technology that directly addresses the main Challenges for EV adoption and means the entire market can open up almost immediately As compared to other EV charging solutions.

Modular

No other motor system is required to facilitate CORE as it develops the voltages from the Vehicle movement itself. CORE can be added to any combustion vehicle, so variety is no longer an issue. Any existing vehicle can easily be modified with a small attachment to the Engine allowing for immediate sustainable Benefits.

Affordable

Once testing is complete, the CORE module Will be extremely affordable, compared to Tesla Superchargers, overcoming the increased cost of entry for anyone looking to go electric, as an after-market kit. Vehicle manufacturers will have the option to license or purchase the technology, for integration into both existing and future designs.

Competition

While there is no direct competitor, to CORE, the value of this technology is that it is not intended to replace the necessity of a home or external charging system environment, but to supplement and extend the overall range of these vehicles and reduce the dependency on both home and commercial charging station infrastructures, as well as reducing the need for periodic stopping and charging of the vehicle. It is targeted at reducing the dependency and use of fossil fuels and greenhouse gasses, while improving one's carbon footprint and the environment.

CORE Eliminates the Costs of Alternatives

A concise summary of typical EV charging-infrastructure costs (U.S., current ranges):

•Home

- Level 1: \$0 – \$600 (use existing outlet)
- Level 2: \$900 – \$2,500 (typical all-in); hardware \$300 – \$1,200; panel upgrades add \$500 – \$2,000+

•Small commercial / workplace (per port)

- Level 2: \$3,000 – \$12,000 (hardware + installation + networking); hardware ~\$600 – \$2,500

•Public / fleet / depot

- Level 2 (per connector): ~\$3,500 (industry averages) up to ~\$15,000 depending on site complexity; installation economies of scale apply

•DC fast charging (per connector / site)

- Lower-power DCFC (~50 kW): ~\$30,000 – \$90,000 per unit; installed site cost commonly \$80,000 – \$250,000+
- Higher-power (150–350 kW): \$75,000 – \$140,000+ for hardware; public DCFC sites often \$250,000 – \$1M+ depending on number of stalls, utility upgrades, civil works, and transformers

Key cost drivers (brief):

- Charger power rating and number of connectors
- Utility service upgrades, transformer and trenching costs
- Distance from electrical service and site civil work
- Labor, permitting, inspections, and local labor rates
- Networking, payment systems, and ongoing O&M/demand charges
- Project scale (per-unit cost falls with larger installs)

Source: <https://recharged.com/articles/ev-charging-station-installation-cost>

CORE Market Predictions

\$823.75 B

EV and Hybrid-EV market projection, by 2030
CORE and ReChargeEV are poised to take up to 90% of this market.
It can be licensed to any Auto Manufacturer, for any vehicle.



\$12.1 B

Electric Aircraft and Aerospace market projection, by 2026
CORE and ReChargeEV can be poised to take up to 80% of this market.
It is the only technology, that I can find, that can allow and aircraft to stay aloft indefinitely.
These estimates do not include the Military and Civil Defense.



\$40.9 B

Electric Marine Propulsion market projection, by 2026
CORE is the only technology, targeting the Marine market.
The average Deep Sea Fishing Boat uses between \$875 - \$1500 of fuel, each trip, so
CORE can drastically reduce the overall cost of Seafood.



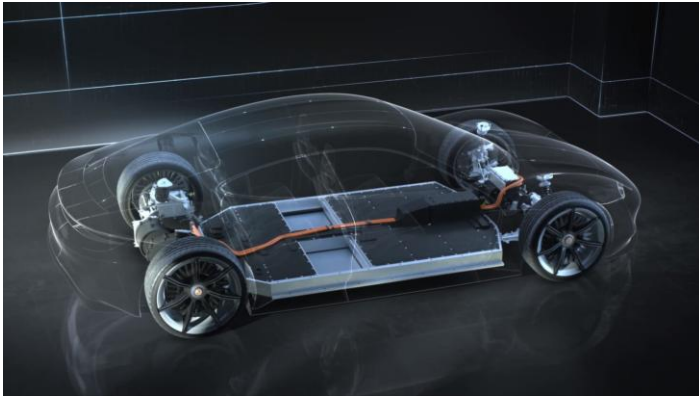
\$6.94 B

Whole-Home and Portable Generators market projection, by 2030
CORE is poised to take up to 80% of this market, as there are no equivalent generators on the market, that can scale like CORE can.
Fully Autonomous, Whole-Home and Industry-Size generators are non-existent, so CORE has the ability to take over 100% of this market.



CORE Target Markets

This is just a small sample of the market areas and opportunities possible with CORE.



* Fully-Electric and Hybrid-Electric Vehicle

This will be the Primary Market strategy, because it will be the easier of the consumer markets to enter.



** Electric Marine Propulsion Market

The 2nd Phase will be the Marine Propulsion and Generator Markets, because there is currently a great need for these, now.



** Electric Generator Markets



Military Power Cart Market



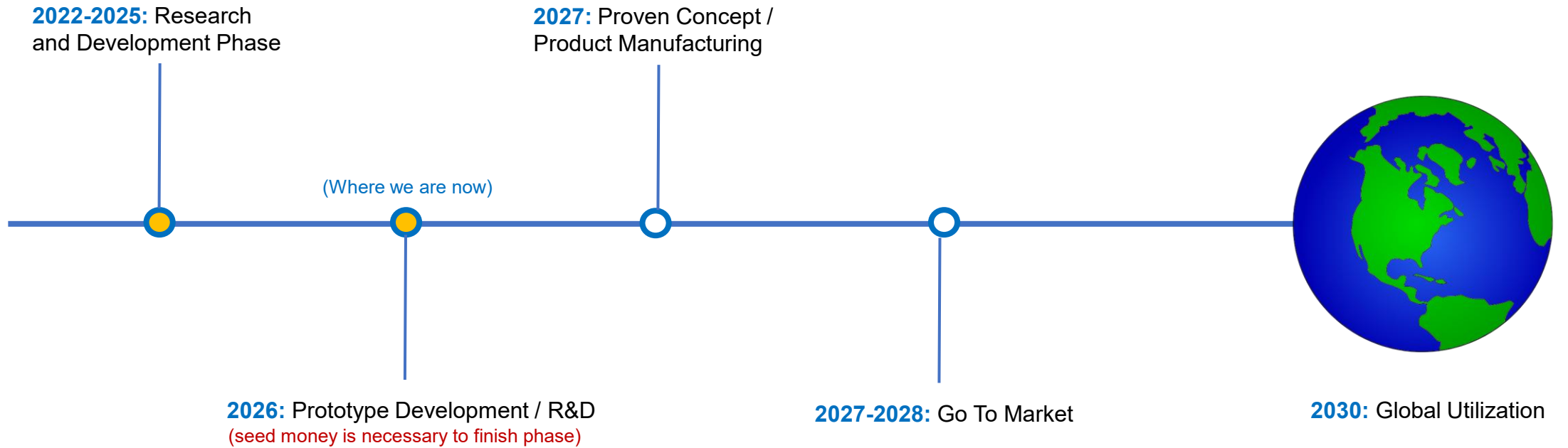
Electric Aviation Propulsion Market



Military Electric Aircraft Propulsion Market

The 3rd Phase will be the Civilian and Military Aircraft and Accessories .

The Ask: Roadmap to Success



Projected Timeline Only - could be substantially shortened, with proper funding

The Ask:

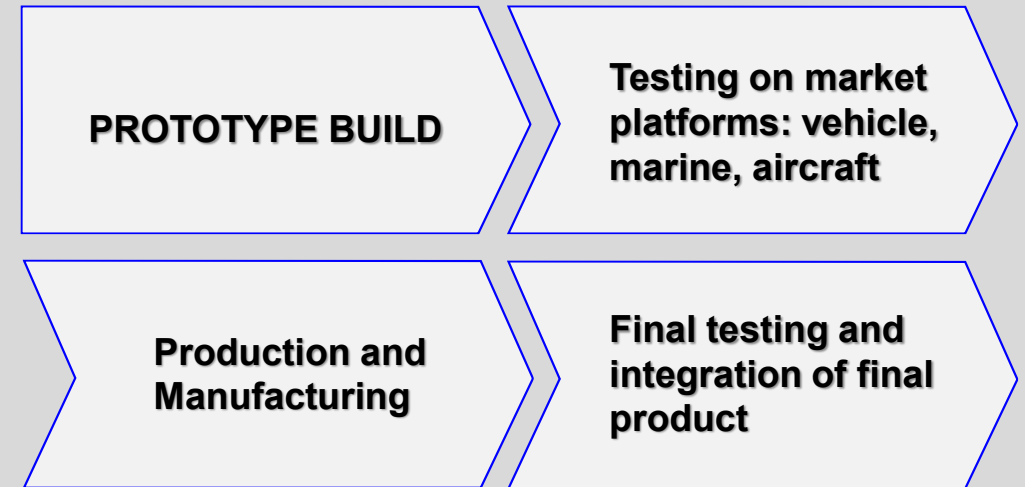
Strategic Partner & Investment

\$1M to unlock the full, patented potential of CORE and get a fully working prototype.

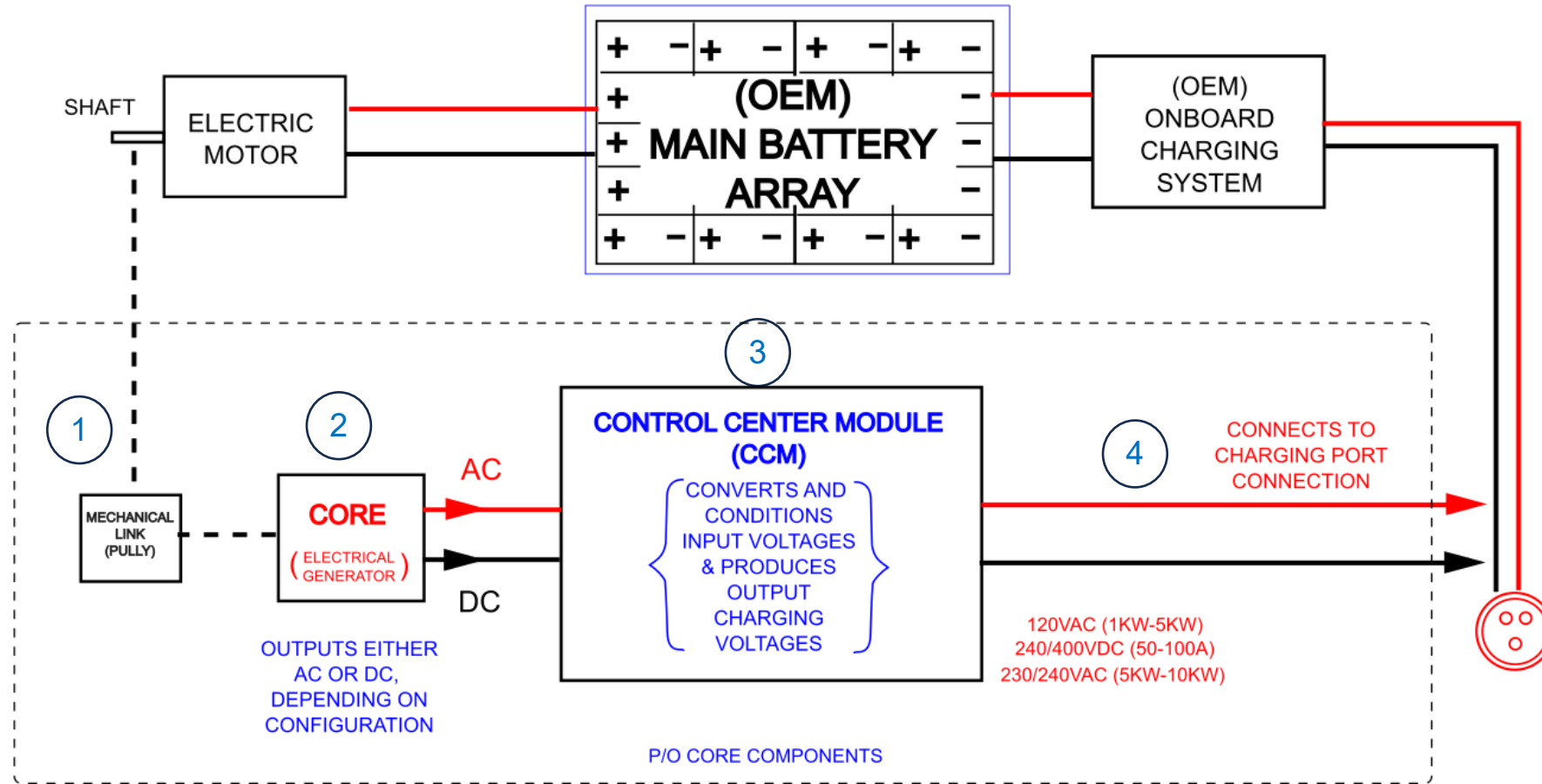
\$300,000 minimal investment is needed demonstrate the real-world capabilities and because the patent is already awarded, there are no barriers to market entry, once work is complete.

Funding would be used for these key activities:

- Materials and Donor procurement for prototype.
- Testing platforms for each key market segment:
 - vehicle, aircraft/aerospace marine propulsion, generator.
- Proven, fully operational model.
- Final testing and integration of final product.
- Production and Manufacturing.
- Hiring key production and engineering assistance.



CORE Flow Diagram



1. CORE captures motion energy.

2. CORE produces steady / constant voltage.

3. CCM converts / conditions voltages to level necessary to charge vehicle.

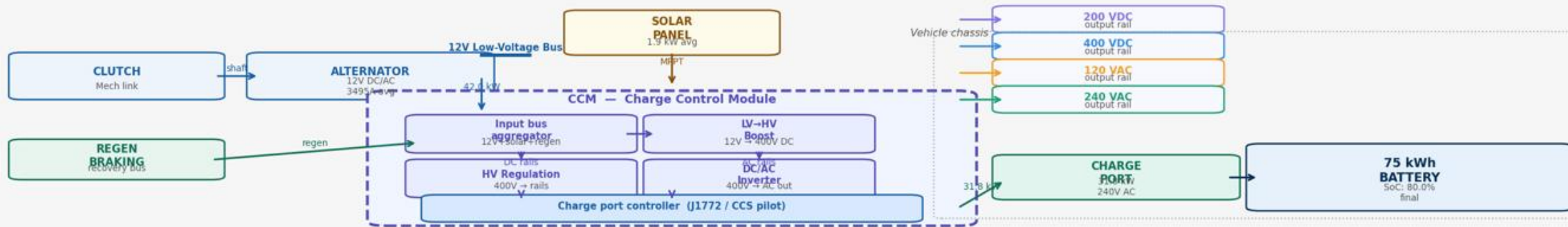
4. CCM Feeds charging voltage to vehicles on-board charging system.

NOTE: CORE is completely separate from OEM system, so if any part fails, CORE will not hinder the vehicle from operating as originally designed.

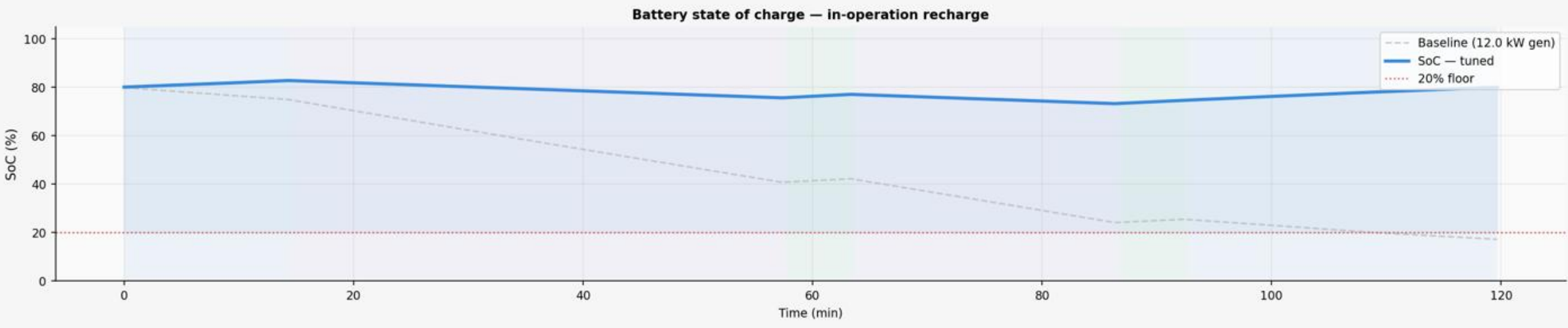
Modeling Simulation: CORE Recharging vs Tesla (typical) 75kWh Battery

The Simulation indicates the theory is sound!

CORE — 12V Alternator + CCM Architecture | 75 kWh Battery
Alternator: 4800A / 57.6 kW @ 12V | Mission: Mixed | Autonomy ratio: 1.000
CORE System Architecture — 12V Alternator + CCM



Further funding and R&D will be needed to produce better than 80% efficiency.



Your EV recharges itself. While driving.

A 12V alternator + Charge Control Module (CCM) delivers 1.0 autonomy ratio on a 75 kWh pack — no charging stop required.

1.000

Autonomy Ratio
(target ≥ 1.0)

Mission Profile Results



Architecture Flow



3x Parallel Alt. Banks

4,800A @ 12V

Single unit hits physics ceiling at 0.548 ratio. Parallel banks = standard solution.

CCM: All-in-One Box

88.4% end-to-end

12V → 400V boost → DC/AC rails → J1772/CCS charge port. No external conditioning chain.

CCM Boost Efficiency

93% min → ratio 1.0

SiC MOSFET topology reaches 97% — cuts CCM losses from 6 kWh to 2.6 kWh/mission.

CCM Boost Efficiency Sensitivity



— CORE eliminates the charging stop. In-operation recharge, proven in simulation.

U.S. Patent No. 11,635,477 B2 | 75 kWh | 1.0 autonomy ratio | Parallel 12V alternator + CCM | Open to partnership

Simulation: Python · U.S. Patent No. 11,635,477 B2 architecture · 3x 1,600A @ 12V → CCM (88.4% chain eff) → J1772/CCS charge port → 75 kWh

The Team



Raymond Folk, Founder/CEO

40+ years as an RF/Microwave and Computer Engineer, Experienced Technologist and Entrepreneur
U.S. Veteran



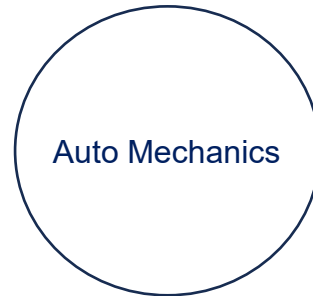
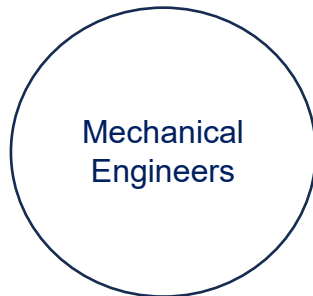
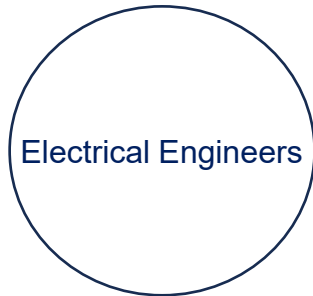
Amy Folk, Co-Founder/CFO

30+ years experience as a Paralegal And Bookkeeper



Tara Leigh Goode, Strategic Advisor

Nearly two decades in Public Service, Energy and Weather Technology. Part of Founding Team that launched Climavision – a game changing Climate Tech Company, Founder/Owner of boutique PR Consulting firm, and Endeavor mentor



We are Recruiting