

# Revolutionizing Transportation Electrification.

The Next-Gen, Ultra-Fast Electric Grid Distributed Management System (UF-GDMS)



Empowering Your Business At the Edge

To accomplish GHG emissions reductions of sufficient magnitude, in the G7 member states, 100% of cars and vans sold must be Zero-Emission Vehicles (ZEVs) by 2035 and 100% of buses and trucks sold must be ZEVs by 2040. Hence, substantial investments are required in vehicles and charging infrastructure to realize these ambitious goals. The Global Vehicle Electrification market was valued at USD 82.13 billion in 2021, and it is anticipated to reach USD 186.8 billion by 2030 at a CAGR of 9.56%.\* Nonetheless, the necessary investment remains considerably higher, resulting in a current investment plan deficit of approximately \$18 billion.^



Energy storage technologies have the potential to significantly reduce CAPEX for transportation electrification. Yet, they currently lack the ability to coordinate their operation with both the EV-charging fleet and the grid. Therefore, the full utilization of storage technologies necessitates the implementation of effective grid management systems.

## Limitations of Existing Grid Management Systems for Transportation Electrification

Operating in minutes and above leading to underutilization of storage technologies for transportation electrification



Operating based on historical data and not addressing non-deterministic events that can occur in transportation electrification



Off-site and centralized architecture making transportation electrification highly reliant on communication infrastructure



Grid electrification is causing an increase in sudden grid-level events that current management systems can't handle. This leads to an unreliable and vulnerable electric grid, highlighting the limitations in grid management mentioned earlier.

## The Consequences of an Unreliable and Vulnerable Electric Grid Management System

### Limited Fast EV Charging Infrastructure

Existing management systems cannot fully utilize energy-storage technologies. Hence, the electric grid has congestion issues and lacks adequate hosting capacity for interconnection of DC fast (L-3) EV-charging systems.

### Interoperability Issue for V2G, VPP, ....

Limitations of existing management systems are hindering them from enabling new operational features and revenue streams for charging infrastructures such as behind-the-meter operation, V2G, V2H, VPP, and similar ancillary services.

### Vulnerability to Communication Failure

Given the remote and centralized operation of existing management systems, subsequent to communication disruption or failure, operation of EV charging systems can be easily put in jeopardy.

**Is there an available, reliable, and cost-effective distributed grid management system that can proactively maximize the usage of storage technologies and enable a seamless, economically-viable and optimal transition towards an all-electric transit fleet?**

\* <https://www.globenewswire.com/en/news-release/2022/07/28/2488244/0/en/Vehicle-Electrification-Market-Size-is-projected-to-reach-USD-186-billion-by-2030-growing-at-a-CAGR-of-9-56-Straits-Research.html>  
^ <https://www.pwc.com/ca/en/industries/power-utilities/publications/electrification-of-transportation.html>

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The answer is **Yes!**

The UF-GDMS is capable of utilizing energy-storage technologies up to their 100% potential, maximizing your ROI, and reducing your CAPEX & OPEX on average down to 50% and 40%; respectively, during your journey to an all-electric transportation system.

## Key Technical Features of our Patented Grid Management System



**In-millisecond Operation Time**

Detecting accidental events in the operation of the EV-Supplying-Equipment (EVSE), enabling remedial actions, and enforcing those actions using storage technologies, all within a millisecond timeframe of the grid operation.



**Proactive Decision-Making Algorithm**

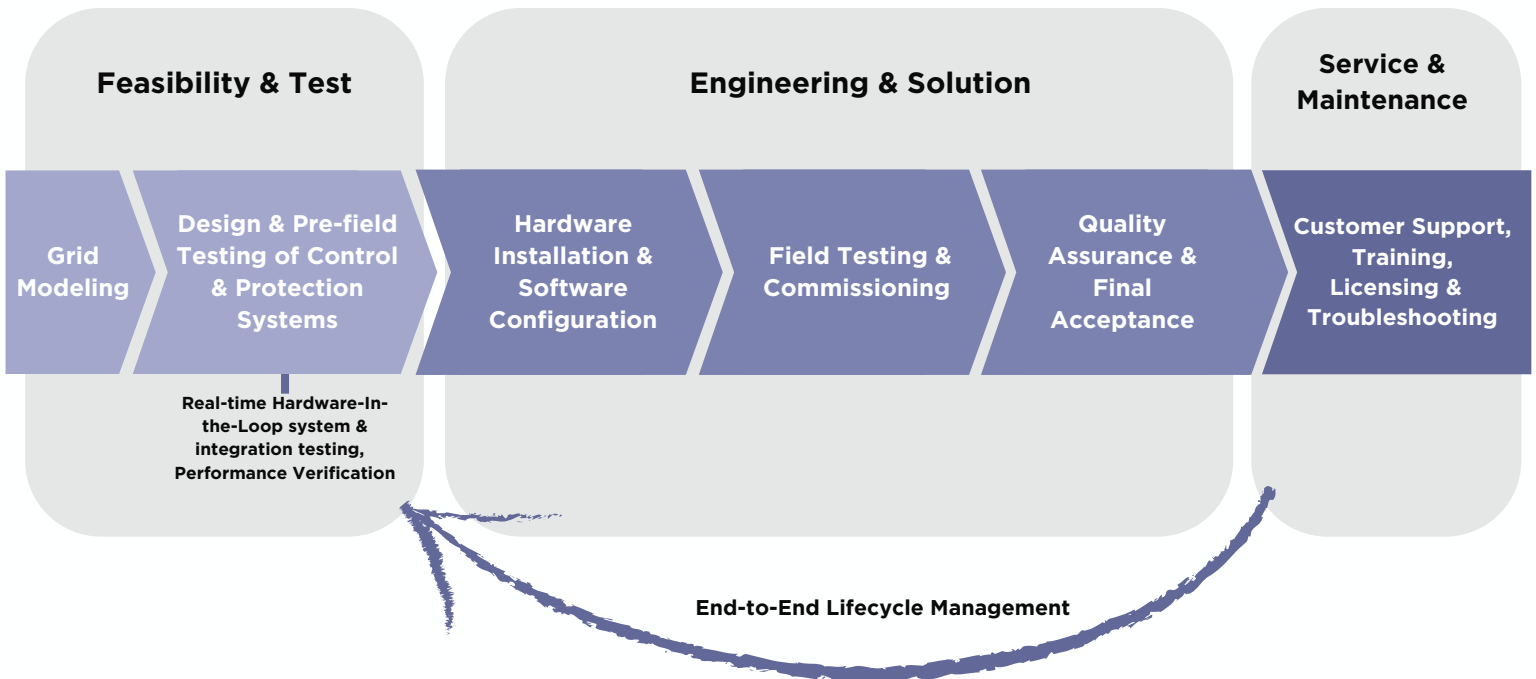
Computationally powerful to proactively handle up to millions of potential events like voltage and frequency excursions, power draw limitation, islanding condition, etc. and maintain continuity of operation of the EVSE.



**Distributed Management for a Distributed Grid**

The embedded management system can be deployed in a hierarchical manner over the mining infrastructure, effectively overcoming communication obstacles and maximizing the EVSE and its supplying grid's resiliency in the event of partial disruptions.

## Solution & Services Roadmap



Contact us today to learn more about how we can help you join the transition towards a cleaner, more reliable, and sustainable energy future.

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