Ultra-Fast Electric Grid Distributed Management System

EdgeTunePower

Empowering Your Business At the **Edge**

As industries such as transportation, mining, agriculture, shipping, and marine move towards electrification, the current electric grid infrastructure may not have the capacity to facilitate such a massive transition. Reinforcing the grid at the transmission-level can be both costly and time-consuming, without enhancing grid's resiliency.
The alternative approach is integrating energy-storage technologies at the distribution level.

Although, storage technologies have high speed and run in milliseconds, however these components are non-intelligent and require high-speed management systems in order to be fully utilized.

The Limitations of Existing Distribution Grid Management Systems

- Operate in the timeframe of seconds, minutes, or even up to hours caused by time-consuming algorithms.
- Operate based on historical data of the grid and are reactive to grid incidents, meaning that they focus on recovering the grid from an outage rather than avoiding outages.
- Are heavily centralized (running on one software-hardware platform), which causes communication latency since a centralized management system must command a distributed grid, making it difficult to achieve high speed.

As grid electrification leads to a growing number of rapid, unexpected events at the grid level that current management systems are unable to respond to, the result is an unreliable and vulnerable electric grid, caused by the aforementioned grid management limitations.

The Consequences of an Unreliable and Vulnerable Electric Grid

Limited Fast EV Charger Infrastructure

Provincial grid's incapacity to equally proliferate fast EV-charging stations across populated and inner parts of cities

Grid Outages

Continuous increase in electric grid outages and lack of grid resiliency. e.g. over $ 150-B of loss in the US due to power outages! (in 2022)*

*Source: Department of Energy

Energy inequity in remote areas

Lack of reliable, affordable and non-polluting sources of energy in remote areas such as rural communities and mining sites with sole reliance on exorbitant, diesel-fed resources.

(The cost of diesel-generated energy is 15-20 times higher than the provincial grid. Source: Pan-Canadian Framework on Clean Growth and Climate Change)

Is there an available, reliable, and cost-effective distributed grid management system that can proactively maximize the usage of storage technologies while staying coordinated with intermittent sources of energy generation (such as renewables) and energy consumption (such as EV-charging stations) within a necessary millisecond timeframe?

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The answer is **Yes**!
ETP's cutting-edge grid management solution can help you fully utilize energy storage technologies, while remaining coordinated with other distributed energy resources, and support the transition towards a net-zero future.

Key Technical Features of Our Patented Grid Management System

In-millisecond operation time

Detecting accidental events on the grid, enabling remedial actions, and enforcing those actions using storage technologies, all within a millisecond timeframe (including communication latency) of grid operation.

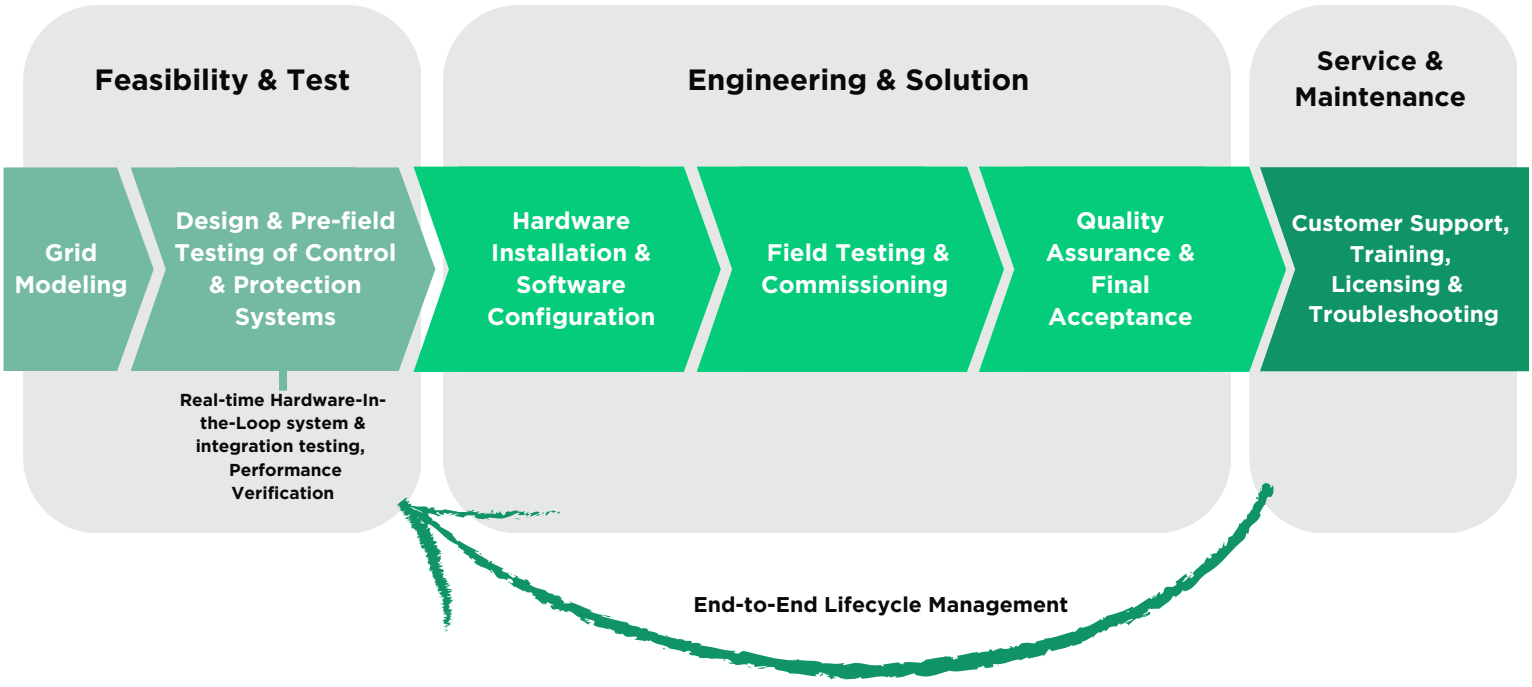
Proactive decision-making algorithm

Computationally powerful to proactively handle millions of potential grid accidents and prepare remedial actions in response to each individual incident that may occur on the grid.

Distributed management for a distributed grid

The hardware-software management system can be deployed in a hierarchical manner over the gird, effectively overcoming communication obstacles and maximizing the 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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