PIXII ENERGY ARCHITECT EMS

Optimizing power infrastructure across Australia. Turning your battery energy storage into a profitable and flexible energy asset.

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PIXII ENERGY ARCHITECT - EMS

The Pixii Energy Architect is an Energy Management System (EMS) that delivers lower operational costs, greater energy efficiency and savings, enhanced reliability, future-proof scalability, and a stronger return on your BESS investment.

REAL-TIME DECISION MAKING

Continuously monitors energy assets such as PV, grid, batteries, thermal plants, fuel cells and loads, along with grid conditions, electricity prices, and energy demand to dynamically adjust strategies for optimal performance.

CONTROL AND OPTIMIZE FLOW

The Energy Architect is controlling when to store, discharge, or trade energy based on real-time data and forecasts. Monitoring system health and action response to unforeseen abnormal events.

COORDINATION OF MULTIPLE SERVICES

Balances primary battery applications with income generating services to enhance reliability, improve operational efficiency and maximize financial returns.

PIXII ENERGY ARCHITECT - EMS

FULLY AUTONOMOUS CONTROL

The Pixii Energy Architect offers fully autonomous control and coordination between power sources and loads, ensuring efficient energy distribution. With its capability to monitor system health and load in real-time, the EMS improves reliability and performance of your BESS.

As energy systems become more complex, managing power efficiently is more critical than ever. The Pixii Energy Architect helps BESS owners and operators maximize profitability while ensuring system stability resilience and longevity. Pixii Energy Architect ensures the best possible economic and operational outcome by prioritizing, balancing, and orchestrating various battery services.

Maximizing profitability for on-grid BESS operation

In on-grid BESS environments, the Pixii Energy Architect maximizes value by coordinating cost-saving services like peak shaving and PV self-consumption with income-generating ancillary services.

The EMS optimizes battery charging and discharging based on energy prices, demand, and grid conditions while ensuring participation in frequency markets, balancing markets, and other grid services.

By stacking and prioritizing different battery functions and services, the Pixii Energy Architect prevents conflicts, protects battery health, and ensures continuous optimization.

Ancillary services and market participation

- Monetize your BESS with income-generating services like frequency regulation, balancing power, arbitrage and voltage support.
- Connect to Virtual Power Plants (VPPs) through aggregators or directly trade in wholesale electricity markets for maximum financial returns.

Empowering EV charging sites to scale, save, and earn

As EV adoption accelerates, Charge Point Operators (CPOs) are under pressure to scale quickly - yet they often face grid constraints, peak demand issues, and high cost of upgrading existing infrastructure.

The Pixii Energy Architect EMS is designed to tackle these issues by ensuring seamless power management, reducing operational costs, and enabling future scalability.

Optimized energy distribution and load management

The Pixii Energy Architect provides autonomous control over power sources and EV chargers, ensuring efficient energy distribution. By continuously monitoring system health and real-time loads, it improves the reliability and performance of charging sites. Intelligent battery buffering, SoC regulation, and solar control allow charging stations to operate smoothly, even in weak grid conditions.

Cost savings and sustainability

By optimizing power usage, reducing peak demand, and leveraging renewable energy, the Pixii Energy Architect helps lower electricity costs and improve overall site efficiency and TCO.

Its smart load balancing ensures that grid demand limits are never exceeded, preventing unnecessary infrastructure upgrades.

Enabling new revenue streams

Beyond optimizing site performance, the EMS opens the door to income-generating battery services, such as participation in frequency markets, voltage support, and other grid services.

By stacking these capabilities, BESS owners can turn their energy storage assets into flexible revenue sources while supporting overall grid stability.

Autonomous energy management for off-grid reliability

In off-grid environments, maintaining reliable power is challenging due to fluctuating loads and multiple energy sources like solar, batteries, and diesel generators. Pixii Energy Architect ensures consistent performance through autonomous control, intelligently coordinating these sources to deliver stable, uninterrupted power - even in the most remote conditions.

By prioritizing solar power, optimizing battery usage, and autonomously controlling the generator to run only when necessary, it reduces fuel costs and maintenance. The EMS improves overall system efficiency, and supports sustainability by maximizing the use of clean solar energy and minimizing diesel consumption and emissions.

Smart load & energy management

- Reduces fuel consumption by managing generator runtime reducing wear and tear.
- Ensures uninterrupted power by prioritizing critical loads and shedding non-essential ones when energy is low.
- Prolongs lifespan of battery and generator.

EV CHARGING

Revolutionizing EV charging in the Australian outback.

In Australia's vast and unforgiving outback, reliable transportation is essential for survival, not just convenience.

Background

A leading initiative is focused on advancing Australia's transition to electric vehicles, particularly in challenging environments like the outback. Given the vast distances and extreme conditions, ensuring reliable EV charging stations is not just a convenience but a necessity for safety.

The challenge

The transition to electric vehicles in Australia includes an ambitious plan to set up 200 EV charging stations nationwide. This initiative faces significant challenges, particularly in the outback. Remote areas often lack grid connectivity, and the isolation transforms the absence of reliable charging options into a critical risk, with drivers potentially stranded in extreme conditions.

The solution

To meet these needs, Pixii developed a comprehensive charging station solution, pre-installed on a 40-foot skid. The setup includes three Pixii PowerShaper cabinets, 25 kW of deployable solar panels, an integrated diesel generator, and two 75kW EV chargers.

Facing a gap in the market, Pixii engineered an innovative Energy Management System (EMS) to enable autonomous and dependable operation in remote areas.

The Benefits

Pixii's EV charging station arrives fully assembled, easing transportation and installation. Its compact design negates the need for oversized transport permits or police escorts.

The system features three Pixii PowerShapers, leveraging solar power to facilitate off-grid fast charging. This approach, backed by Pixii Energy Architect lessens reliance on diesel generators.

The system's built-in redundancy ensures continuous operation, featuring dual 75kW EV chargers for peak demands, a backup diesel generator for additional power security, and ample battery storage to sustain energy supply. The system is designed to function seamlessly, maintaining operations even when components fail.

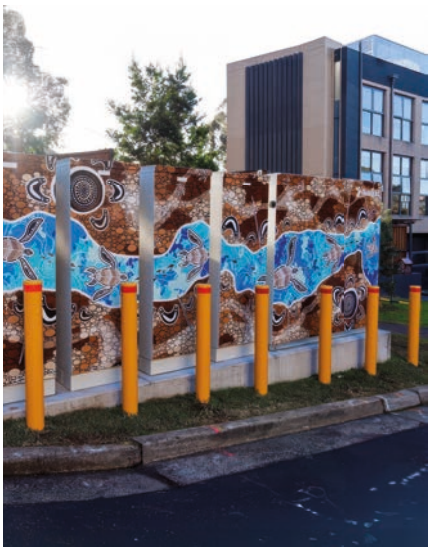
Pixii's EMS, customized for this off-grid context, allows the charging station to function autonomously, independent of external network connections.

In areas with unreliable communication infrastructures, the EMS's local power management capabilities are crucial, ensuring consistent reliability, optimized energy management, and safety for travelers.

The results

In just one month, the station recorded 31 charging sessions, demonstrating strong demand in remote locations.

This breakthrough paves the way for a broader, greener transportation network, enhancing global sustainable mobility.



DSO/DNSP

Making waves: Bondi Beach powers ahead with Pixii's community battery.

The challenge

Bondi Beach's sunny climate makes it ideal for solar energy generation. However, the community often produces more solar power than it can use, resulting in energy wastage. Additionally, with the rise in electric vehicle ownership, Bondi needed a sustainable EV charging solution powered by renewable energy.

The solution

Pixii, in collaboration with Ausgrid and PlusES, installed a 160kW / 412kWh Battery Energy Storage System (BESS) at Bondi Beach. The modular PowerShaper technology captures and stores excess solar energy from local households, making it available when needed. The system also powers a council-operated EV charging station using renewable energy.

The benefits

The BESS reduces energy waste by storing surplus solar power and releasing it during peak times, lowering energy costs for residents. It supports Bondi's sustainability goals by providing solar-powered EV charging, cutting emissions, and reducing dependence on traditional energy sources.

The results

The community battery has successfully maximized solar energy utilization and provided a reliable renewable charging infrastructure.