Repurposed EV batteries deliver high-capacity energy storage: Allye Energy launches MegaMAX to bolster grid resilience

Mitigate blackouts with flexible, economical and robust energy storage solutions

Allye Energy MAX1000 - Solar

LONDON, UNITED KINGDOM, May 28, 2025 /EINPresswire.com/ -- • Mitigate blackouts with flexible, economical and robust energy storage solutions

• Allye Energy's new MegaMAX range provides up to 1.5MWh of flexible, dispatchable energy and ultra-fast frequency response, acting as critical infrastructure to stabilise Europe's increasingly fragile electricity grids

• Designed as "drop and go" systems deployable in under two minutes, MegaMAX units bypass costly and time-consuming grid upgrades, offering immediate support for electrification projects, EV charging, ports, and off-grid operations

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>
> *Jonathan Carrier, Founder and CEO of Allye Energy*

• By combining up to 18 repurposed EV battery packs with mixed chemistries and an AI-driven Energy Management System, the MegaMAX range of battery energy storage systems (BESS) delivers low-carbon, high-reliability storage while intelligently balancing supply and demand for a renewable-powered future

Allye Energy, the clean-tech innovator transforming intelligent energy management, has today unveiled the MegaMAX range consisting of two cutting-edge high-capacity battery energy storage systems (BESS), the MAX1000 and MAX1500. Designed specifically to address the urgent need for grid balancing and infrastructure resilience, these systems deliver up to 1.5MWh of dispatchable energy and instantaneous grid support, redefining the role of battery storage in modern electricity networks.

As electricity grids across Europe face growing instability, highlighted by the recent Iberian Peninsula blackout and substation fires in London, Heathrow and Exeter, the need for flexible, fast-responding energy solutions has never been more critical.

Allye's MegaMAX systems step in where the grid falters, offering ultra-fast frequency response and synthetic inertia to stabilise networks and prevent cascading failures.

Jonathan Carrier, Founder and CEO of Allye Energy, said: "With Europe's electricity grids under increasing strain as seen in the recent Iberian Peninsula blackout and substation fires in London, Heathrow, and Exeter, the demand for agile, high-capacity energy storage systems that can instantly stabilise the grid has become absolutely essential.

Allye Energy - EV Charging

Allye Energy Max1000 - Logistics

He continued: "The MegaMAX range represents the next evolution in our mission to create flexible energy banking solutions that make clean energy more accessible, affordable, and critically, more resilient. We've taken the commercial success and engineering excellence of our MAX300 platform and scaled it to meet much larger power demands. These systems aren't just batteries - they're intelligent energy management hubs that can transform how businesses approach electrification while simultaneously providing vital grid stabilisation services."

Both systems maintain the same physical footprint while offering flexible capacity options. The MAX1000 provides 1MWh storage with up to 840kW of power, while the higher-capacity MAX1500 delivers up to 1.5MWh and up to 1.25MW of power, making it suitable for the most demanding applications. Each MegaMAX integrates three Allye MAX300 structures into an integrated, functional system with inherent redundancy, featuring a fully liquid-cooled thermal management system to improve round-trip efficiency, extends battery lifetime, and enhances performance.

MegaMAX units integrate advanced AI-driven control systems that enable real-time decision-

making and ultra-responsive frequency regulation. By acting as grid shock absorbers, they can instantaneously inject or absorb energy to maintain the 50Hz frequency balance that is fundamental to grid stability. This is a necessity as fossil-fuel baseload generation retires and intermittent renewables take their place.

Each MegaMAX unit is a self-contained, modular “drop and go” solution that can be deployed in under two minutes, circumventing the multi-year, multi-million-pound delays often associated with grid upgrades. With 50–80% of electrification projects facing severe power constraints, MegaMAX provides an immediate path forward for critical infrastructure, from Electric Vehicle (EV) charging to Ports and industrial electrification. The MegaMAX range functions equally well in stationary grid-tied and off-grid applications:

On-grid (stationary) installations: Function as battery buffer systems for EV charging where the grid is constrained, integrate with local solar generation, provide peak shaving, and perform smart electricity price arbitrage to lower operating costs. Crucially, they can also deliver essential grid stability services, rapidly responding to frequency fluctuations within milliseconds

Off-grid (mobile) applications: Replace diesel generators with zero-emission power for construction sites, events, and remote operations

Unlike traditional batteries, MegaMAX combines up to 18 repurposed EV battery packs with mixed chemistries (LFP and NMC), significantly reducing its environmental footprint while enhancing energy diversity and reliability. This hybrid approach also cuts embedded carbon by over 40% per unit, saving up to 100 tonnes of CO□e.

Dr. Argy Nazemi, Director of Control Systems at Allye Energy, added: "With the MegaMAX we've developed an exceptionally sophisticated control architecture that independently manages each repurposed EV battery pack for optimal performance, safety, and longevity. Our proprietary Energy Management System (EMS) continuously analyses usage patterns, grid conditions, and even weather forecasts to intelligently optimise charging cycles and energy flows. What truly sets our system apart is its ability to respond instantaneously to grid frequency variations, providing the synthetic inertia that is increasingly essential as our energy mix shifts towards renewables. The recent blackout in Spain and Portugal demonstrates why this capability is no longer optional but essential for grid resilience."

The MegaMAX range can lower energy costs by up to 50% while simultaneously generating additional revenue through participation in grid flexibility markets. This capability is made available to customers through an API so they can optimise the battery or through an independent third-party optimiser.

The MegaMAX range brings industrial-grade reliability, lower operational costs, and national grid-level resilience in one scalable system. It delivers immediate and measurable benefits to both individual energy users and the wider electricity network, ensuring that as the energy transition

accelerates, the grid keeps pace.

The MAX1000 is available for order now, with the MAX1500 launching Summer 2025.

For more information, visit allye.com

Media room: https://bit.ly/3q6Q9yH

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