



📍 England, United Kingdom

GEMS retrofit future-proofs and expands revenue potential for Zenobē

Not all PPCs are created equal: intelligent control software is now critical for performance and market access

The Challenge

Across global power markets, grid operators are relying more heavily on utility-scale storage to keep the grid stable. Yet with grid codes evolving at unprecedented speed, regulatory compliance has become a moving target for utility-scale battery storage operators.

Variable renewable generation and more dynamic loads demand a control system that can think—and respond—faster than traditional SCADA or EMS platforms. Many legacy systems lack the capabilities required today, including: millisecond-level response, multi-tenant configuration, stateful grid applications, and scalability for multi-GWh sites.

Without these capabilities, operators risk missing performance windows, failing compliance tests, and losing access to high-value ancillary services.

Driving value with precise control

After seeing strong results from GEMS on multiple previous projects, Zenobē chose Wärtsilä to retrofit its Capenhurst site with the GEMS Power Plant Controller (PPC) for system control. They also implemented GEMS for overall energy management to secure grid compliance, enhance operational flexibility, and position the site for

“Retrofitting our Capenhurst facility with GEMS has made the site future ready, enabling our system to keep pace with evolving UK grid requirements. We value the flexibility and reliability of the GEMS platform and the expertise Wärtsilä brings to getting projects finished efficiently.”

Simon Wood

Global Director of Operations – Network Infrastructure, Zenobē

The challenge	Wärtsilä solution	Benefit
<ul style="list-style-type: none"> • Ensure a 100 MW transmission-connected BESS stays compliant as UK grid codes evolve rapidly, including the complex, stateful De-load requirement • Maintain competitiveness in increasingly dynamic frequency markets where response speed and control precision are critical • Manage multi-asset operations behind a shared POI without adding integration risk or operational burden 	<ul style="list-style-type: none"> • Retrofit of the Capenhurst site with Wärtsilä's GEMS control and optimisation platform, including the advanced GEMS PPC • Implementation of stateful grid-code functions such as De-load and support for multi-tenant POI control • Coordinated delivery from Wärtsilä's grid-compliance specialists, software engineers, and Global Technical Expertise Centre (GTEC) team to minimise downtime and secure rapid regulatory approval 	<ul style="list-style-type: none"> • Supported by technology that is designed to help energy storage sites stay ahead of evolving grid-code requirements • Best-in-class platform that makes asset management easy • A reliable partner with a track record of achieving grid compliance across over a dozen markets worldwide

Advanced grid code compliance

GEMS is engineered to stay ahead of regulatory change. At Capenhurst, for example, this means Zenobē is now able to meet the UK's De-load requirement, a stateful control function that ensures batteries can behave like generators during frequency dips.

Where traditional, stateless control logic (e.g., "if frequency = X, output Y") falls short, De-load requires the system to consider what the plant was doing before the event and how conditions evolve. This type of predictive, state-aware control is essential for maintaining access to frequency-response revenue streams.

GEMS' architecture inherently supports this complex logic, allowing Wärtsilä engineers to implement De-load ahead of the requirement coming into effect.

By contrast, EMS platforms that lack stateful capabilities cannot meet De-load today, cutting off market access and effectively turning the asset into an operational expense rather than a revenue generator.

Multi-tenant control and a shared POI

The Capenhurst retrofit also delivered a multi-tenant configuration, allowing multiple independent power plants to operate behind one point of interconnection (POI).

GEMS enforces POI-level compliance, preserves each tenant's operational and commercial independence, and supports more flexible, diversified revenue strategies.

This architecture reduces integration complexity and simplifies compliance for large, multi-asset sites.

Built to last

GEMS' modular and flexible architecture means new grid functions can be delivered quickly and repeatedly, saving engineering hours and reducing the risk of noncompliance or grid disconnection. Especially in complex grids like NESO in the UK, flexibility is key.

At Capenhurst, Wärtsilä's grid compliance specialists, software engineers, and the Global Technical Expertise Centre (GTEC) team collaborated closely with Zenobē to deliver the retrofit and approvals in just a few months—minimising downtime and ensuring a seamless transition to the upgraded PPC.

"The Wärtsilä team's ability to maintain both the project schedule and overall budget has been widely commended. We successfully achieved commercial operation and secured full FON approval, marking a significant milestone for the project," says David Hankinson, Project Manager at Zenobē.

Going forward, the Capenhurst facility will be supported by a long-term service agreement that includes GEMS Cloud Connect's remote monitoring and data access, uptime support, and regular software updates ensuring the plant stays compliant, connected, and competitive over its full operational life.

Partner: Zenobē

Zenobē is a global leader in EV fleet electrification and battery solutions, operating some of the largest and most advanced battery energy storage assets in the UK and Europe.

Site location: England, UK

Capacity: 100 MW / 100 MWh

Solutions: GEMS control and optimisation software, grid integration support

Delivery: 2025

Related Resources

[Wärtsilä's GEMS PPC Specification Sheet](#)

[Zenobē x Wärtsilä project portfolio](#)



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