Specification Sheet

# GEMS Renewables+

Wärtsilä Energy Storage and Optimisation (ES&O)'s **GEMS Renewables+ solution** provides complete power plant control and energy management functions for grid-tied hybrid plants that combine renewable energy (solar and/or wind), and energy storage systems (ESS).

This solution enables renewable, predictable, flexible, dispatchable power generation and grid ancillary services, either for an Independent System Operator (ISO) / Transmission System Operator (TSO), or under a Power Purchase Agreement (PPA) arrangement.

## Asset Coverage

Energy Storage System (ESS)

PV system AC-coupled or DC-coupled with ESS

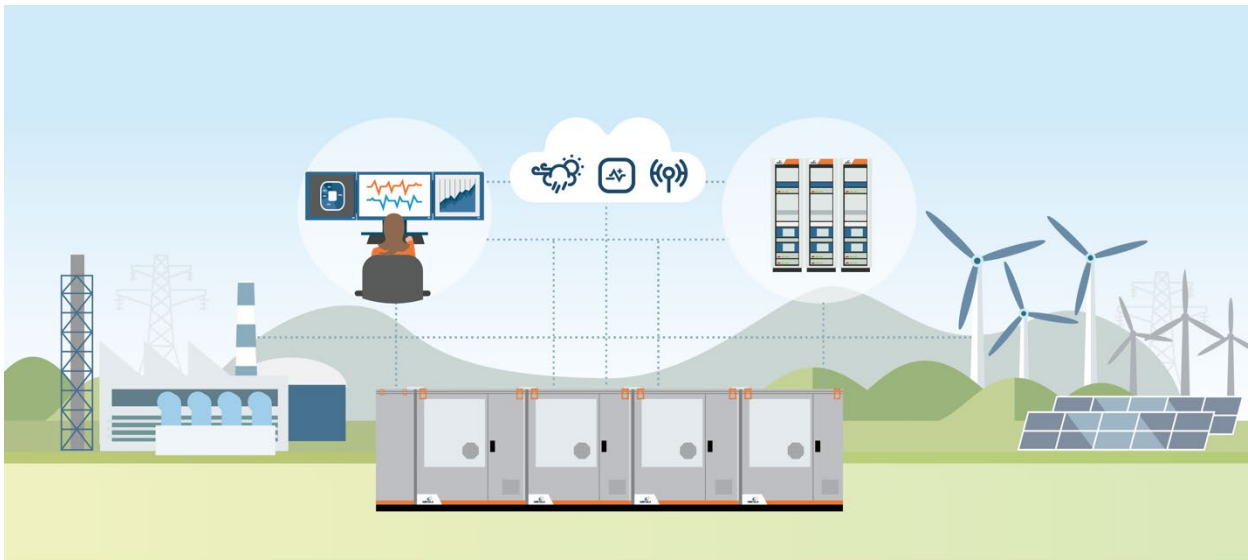Wind power generation

Gensets

## Advantages

**Optimised control of renewable and ESS assets** under weather conditions, equipment failures, maintenance schedules, and other uncertainties.

**Transparent insights** through the use and versatility of the GEMS user interface, API, and SCADA capabilities to manage and optimise various assets under a single portfolio.

**Dispatchable renewable energy** with GEMS to orchestrate and optimise your renewable generation assets and energy storage.

**Industry-leading expertise** in renewable power generation, via Wärtsilä's experience in energy storage, thermal balancing, and control and computing energy management technologies.

- Maximise revenue with GEMS IntelliBidder by generating optimised bids into energy and ancillary markets or providing optimised commitments to off-takers following Power Purchase Agreement (PPA) rules.

## Solution  Components

- Tertiary control for optimised dispatch of PV, wind, and ESS units.
- Secondary control to meet point of interconnection (POI) limit, power ramp rate, and power factor constraints.
- Primary control for frequency and voltage response.
- Renewable generation forecast with GEMS Fleet Director and GEMS Hybrid Power Plant Controller (optional add-on).
- Energy price forecast with GEMS IntelliBidder (optional add-on).
- ISO/TSO bid auto-generation with GEMS IntelliBidder (optional add-on).
- PPA commitment auto-generation with GEMS IntelliBidder (optional add-on).

## Applications

- Capacity firming
- Energy shifting
- Dispatch signal following
- Curtailment capturing
- Renewable power smoothing
- Frequency response
- Voltage response/control
- Custom operations to meet project-specific needs

## Related  GEMS  Products  🔗

**Wärtsilä GEMS Hybrid Power Plant Controller** software for hybrid generation asset control, local operation, monitoring, protection, and data collection on site installed in the GEMS Rack.

**Wärtsilä GEMS Fleet Director** software for multi-plant fleet management, virtual power plant (VPP) formation, remote monitoring and control, data analytics, and renewable forecasting installed in the cloud.

**Wärtsilä GEMS IntelliBidder** for conducting market auto-bidding or PPA commitment generation.

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