PowerKonnekt

Renewable Energy Integration

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Renewable Energy Integration

"Renewable Energy Integration refers to the coordinated control and optimization of renewable generation assets to ensure grid stability, energy efficiency, and maximum economic value."

System Coordination

Integrates s**olar, wind, hydro, and other renewable assets** through unified **real-time monitoring and control.**

Advanced Energy Optimization

Ensures intelligent **dispatch, forecasting**, and **BESS coordination** to **minimize curtailment** and **maximize asset performance.**

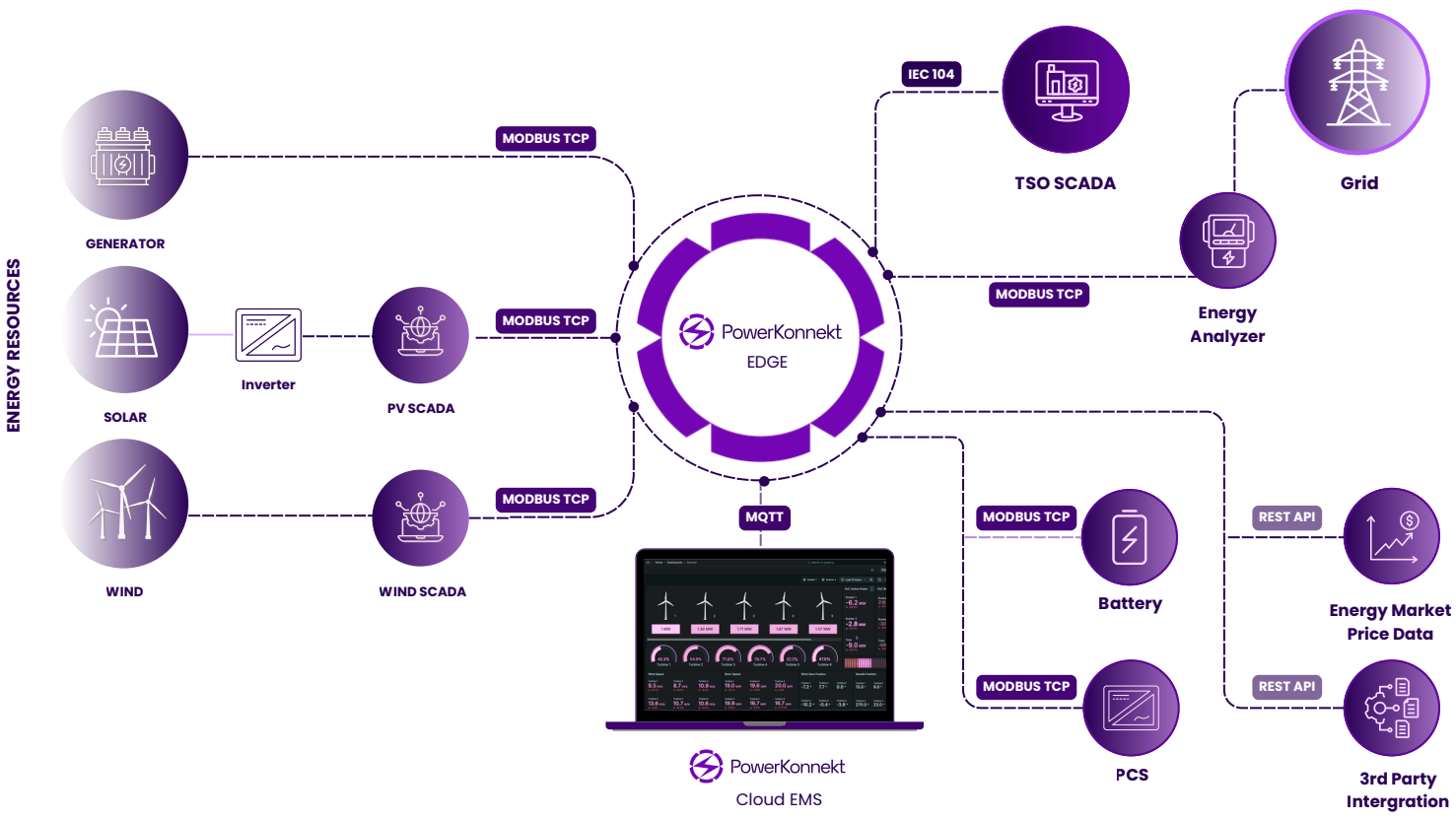
Grid & Market Alignment

Enables **grid-code compliance, frequency support, and market participation** through centralized and **site-level EMS control.**

Operational Visibility

Asset Protection & Performance Control

Revenue & Value Optimization



PowerKonnekt Offers

Renewable Energy Integration

1. Universal Renewable Plant Integration: Seamless integration with solar, wind, hydro, geothermal, or biomass generation sites with a brand-agnostic approach.

2. Advanced Plant-Level Control: Precise active and reactive power control tailored to each renewable asset's operational characteristics.

3. Hybridization & Storage Coupling: Expert coordination of renewable plants with BESS for smoothing, ramp control, and curtailment reduction.

4. Grid-Code & TSO Compliance: Full alignment with national grid codes including voltage control, frequency response, and dynamic grid support.

5. Power Plant Controller (PPC) Functionality: Centralized control logic ensuring plant-level optimization and stable grid interaction.

6. Forecast-Driven Dispatch Optimization: Integrated renewable generation forecasting for intelligent scheduling and market alignment.

7. Vendor-Agnostic Communication Architecture: Interoperable with inverters, SCADA systems, protection relays, and metering infrastructure.

8. Real-Time Performance Monitoring & Analytics: Operational transparency through KPI tracking, alarm management, and lifecycle-aware optimization.

CASE STUDY

Project: Ege RES
Size: Total 26,56 MWh
Location: İzmir, Türkiye

Key Capabilities Demonstrated

- Real-time wind + BESS coordination **under live grid conditions**
- Stable **ramp control and fluctuation management** at utility scale
- Seamless integration of **CATL batteries, Powerelectronics PCS**, and plant-level controls
- Performance validated through **Ministry acceptance**

Outcome

PowerKonnekt enables:

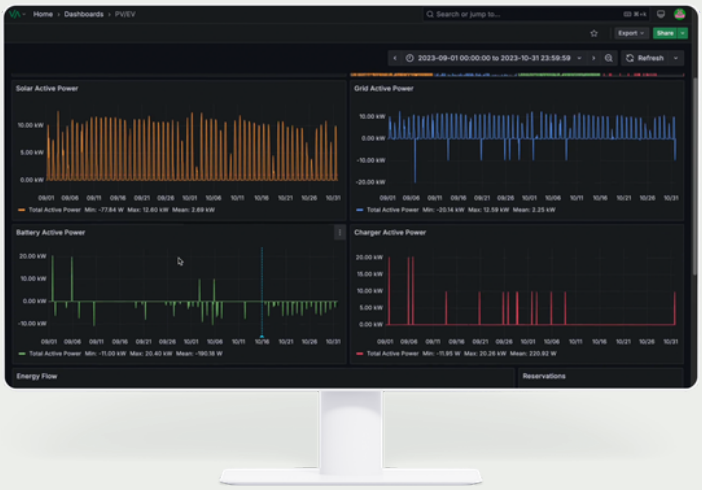
- Grid-stable wind + storage hybridization at scale
- Curtailment reduction and optimized renewable utilization
- Revenue stacking through intelligent dispatch and storage management
- Fast-response frequency support and dynamic grid services
- Scalable architecture for future capacity expansion

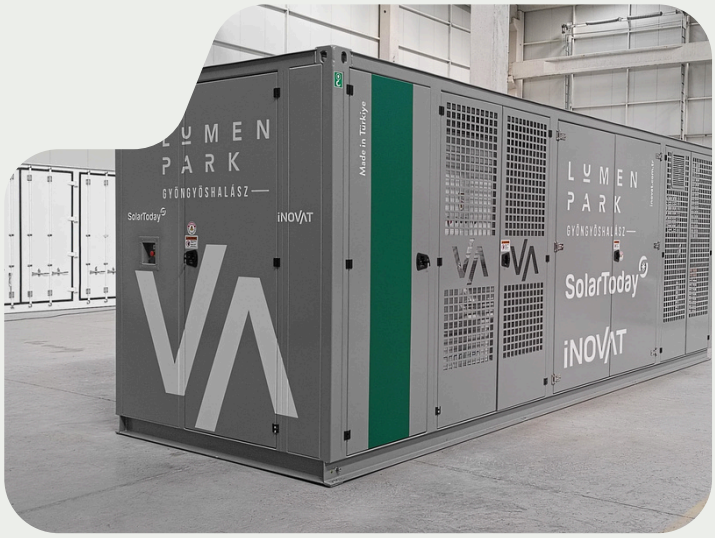
CASE STUDY

Project: Gyöngyöshalasz ESS
Size: Total 3.76MWh
Location: Gyöngyöshalasz, Hungary

Key Capabilities Demonstrated

- Real-time EMS control for **aFRR-ready** BESS operation
- Seamless integration with **AC system architecture and plant-level assets**
- **Flexible EMS configuration** aligned with country-specific market and grid requirements



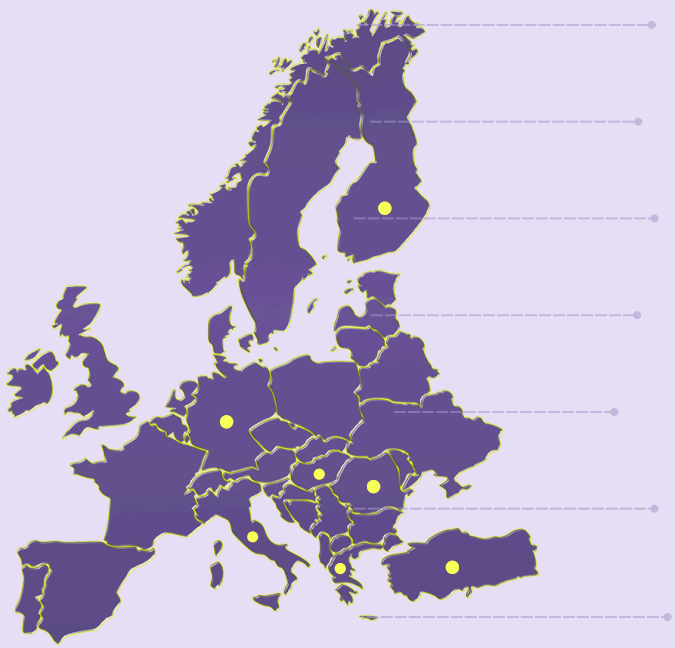


Outcome

PowerKonnekt enables:

- **Reliable participation in aFRR and other ancillary service markets**
- Smarter **charge/discharge optimization** based on grid signals and market opportunities
- Improved operational responsiveness for dynamic grid support applications
- **Scalable project architecture** for future market expansion and multi-site growth

OTHER GLOBAL REFERENCES



Finland
Frequency Control, Self Consumption, TOU Optimization

Germany
Self Consumption, TOU Optimization, Peak Shaving

Romania
Frequency Control, Self Consumption, Renewable Energy Integration

Hungary
Renewable Energy Integration, Load Shifting, Arbitrage

Italy
Peak Limiting, Scheduled Charge, Load Following

Greece
Voltage Regulation, Self Consumption, TOU Optimization

Bulgaria
Peak Limiting, Load Shifting, Arbitrage

CASE STUDY

Project: Göktepe BESS
Size: Total 132 MWh
Location: Yalova, Türkiye

Key Capabilities Demonstrated

- Seamless EMS integration with **PPC, BESS, and renewable assets**
- Support for **black start, FCR, and standard plant control functions**
- Real-time monitoring, command execution, and plant-level coordination
- **Commissioning-ready** EMS logic tailored to site and **grid requirements**

Outcome

PowerKonnekt enables:

- **Stable coordination** between storage and renewable generation
- **Fast-response support** for **grid and frequency** services
- Improved visibility and centralized operational control
- **Stronger plant resilience** through advanced EMS functions
- **Scalable system architecture** for future expansion

CASE STUDY

Project: Romania Gorj ESS
Size: Total 13,76 MWh
Location: Gorj, Romania

Key Capabilities Demonstrated

- Smooth EMS integration across AC-side system architecture
- Coordinated control of storage and renewable generation assets
- Reliable plant operation through standard functions and site-level EMS logic

Outcome

PowerKonnekt enables:

- Efficient renewable + storage hybrid operation
- Stronger plant coordination from a single EMS layer
- Scalable control structure for future asset expansion

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