KNESS

ESS projects:

from business model development and optimal equipment configuration to implementation and management



Geographic Footprint and Key Figures

17 years
experience in energy sector

2 GW
energy facilities in the O&M portfolio

1,5 GW
SPPs implemented in Ukraine, Poland and Latvia

1 GWh
ESS implemented and under construction

1 GW
RES & ESS in Balancing and Aggregated Groups

700 MW
WPP in the development projects portfolio



Energy Storage System Parks by KNESS

1 GWh of ESS projects implemented and under construction

Solution

Majority of the facilities are implemented based on solutions by our strategic partner-manufacturer HITHIUM

Description

Battery energy storage systems operate under various business models, including energy arbitrage, participation in the ancillary services market, and imbalance optimization















ESS AS A COMPREHENSIVE SOLUTION:

from development to management in the market

Construction, grid connection and commissioning

Service and technical maintenance (O&M)

Supply of all equipment

“Turnkey” BESS by KNESS

Warranty support for installed equipment

Development and design

Provision of BESS market operation services



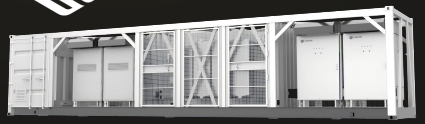
Manufacturing Partners

KNESS is an official distributor and integrator of equipment from Tier-1 manufacturers

HITHIUM



SINENG



NR



KEY BENEFITS FOR YOUR PROJECTS

RELIABILITY & SAFETY

Compliance with international standards

PROVEN INTEGRATION

System compatibility and seamless integration

HIGH PERFORMANCE

Stable operation and rapid response

BANKABILITY

Bankable Tier 1 equipment and a proven track record of project delivery

LOCAL PRESENCE

Local engineering team and after-sales service

FULL LIFECYCLE SUPPORT

From design to operation and ongoing support

LOCAL SPARE PARTS STOCK

Ukraine's only ESS spare parts warehouse



HiTHIUM BESS

+



Sineng / NR Electric PCS

+



EMS and control systems

=

RELIABLE EFFICIENT BANKABLE SOLUTIONS

Energy Management System by KNESS



416 MWh
ESS connected to the system

Main use cases:

1 Ancillary services market participation

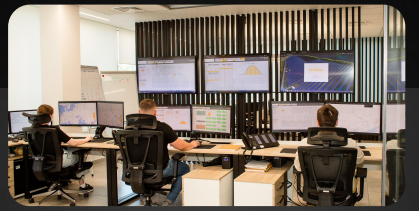
- Automatic delivery of FCR and aFRR services
- Maintaining the target ESS state of charge and recharging during low-price periods
- Using additional capacity for trading

2 Trading tool:

- Forming trading operations for ESS
- Full integration with electricity trading platforms
- Automated market monitoring and price forecasting

3 Operation for own needs:

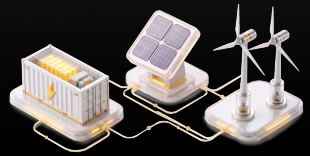
- Operation based on predefined scenarios or in fully automatic mode
- Minimizing electricity consumption from the grid and improving energy efficiency



EMS by KNESS is a tool for various types of energy facilities:



Standalone solutions

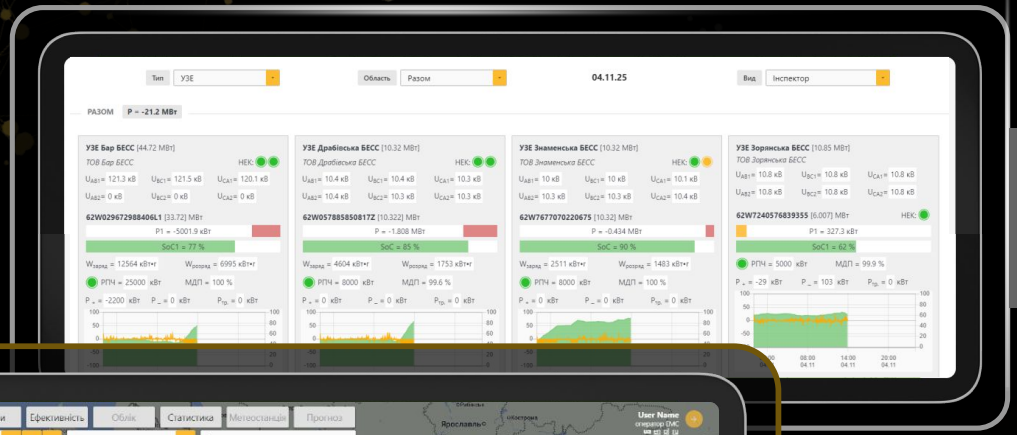


Co-located solutions

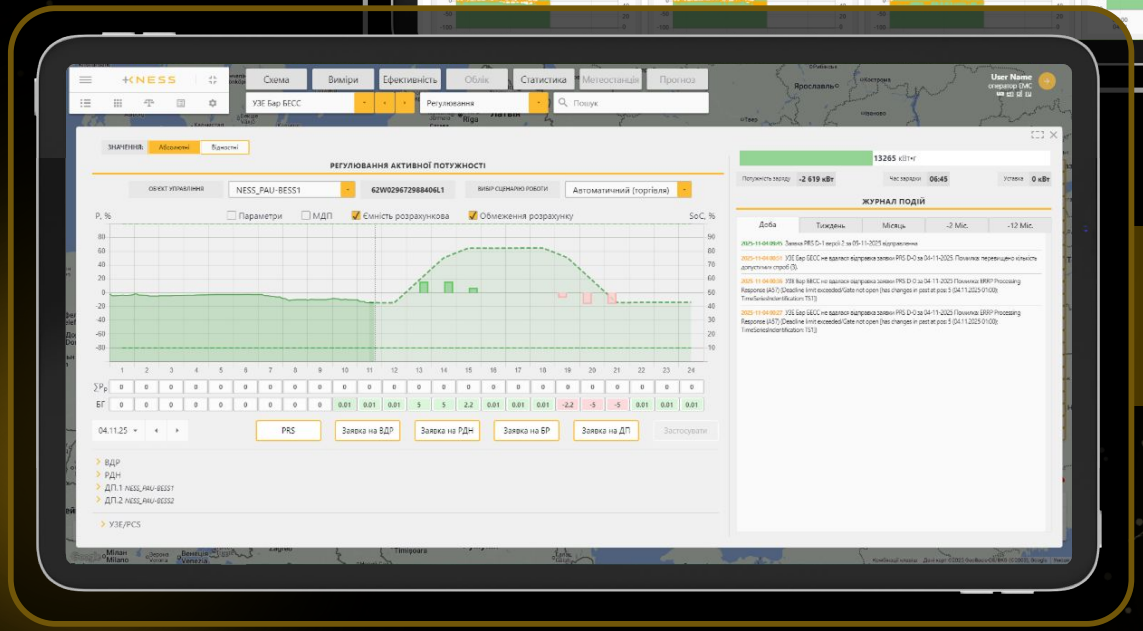


Behind-the-Meter

EMS by KNESS



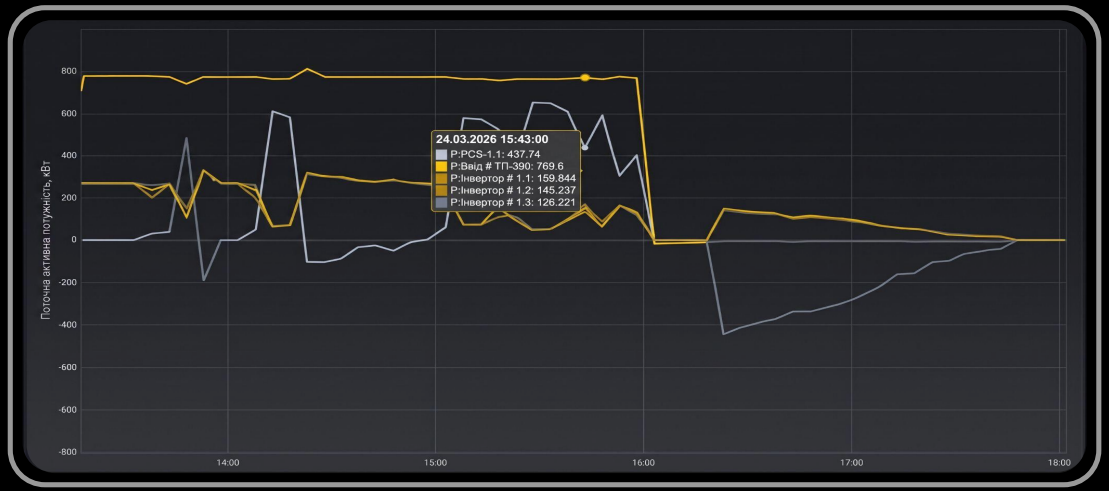
Main EMS parameters



Overview of the screen Management with EMS

Managing the output schedule in a hybrid SPP + ESS project

Operating mode: positive and negative imbalances compensation

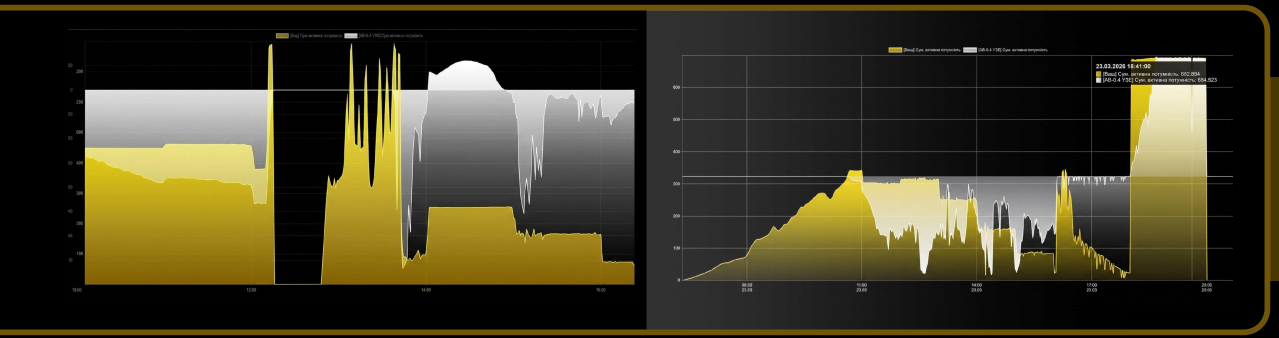


Additionally, the graph shows:

- Point of delivery stabilization
- Maintaining the predefined schedule
- ESS charging from excess SPP generation

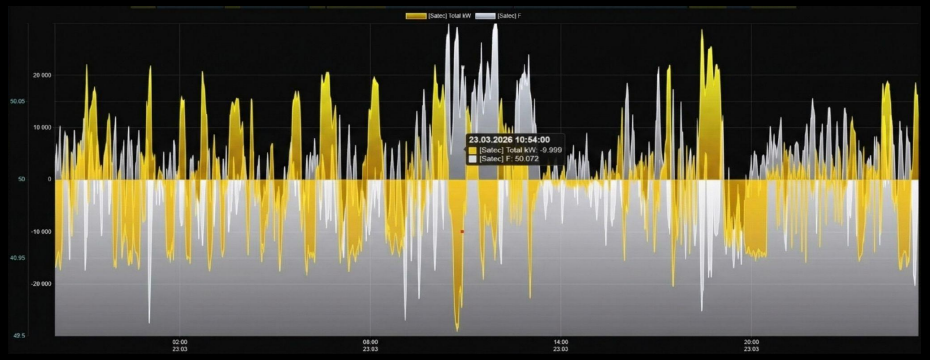
- power at the point of delivery
- power of PCS (ESS charge/discharge)

Other curves - SPP generation



In addition: the graph confirms active ESS participation in the facility's power balance and change in the power input profile.

ESS as a tool for system flexibility: FCR and aFRR



- Grid frequency, Hz
- Active power, kW



- actual SOC
- market operations in addition to the basic mode

Key effects:

- automatic response of ESS to frequency deviations
- provision of FCR and aFRR services
- maintaining an operational SOC
- a combination of system service and market-oriented operations

This mode is implemented using EMS — a tool for managing the ESS operation logic

KNESS

Tetiana Petrovska

Commercial Director at KNESS

