



EMS Supernode

Unlimited energy management capabilities



Higher profits



Full automation



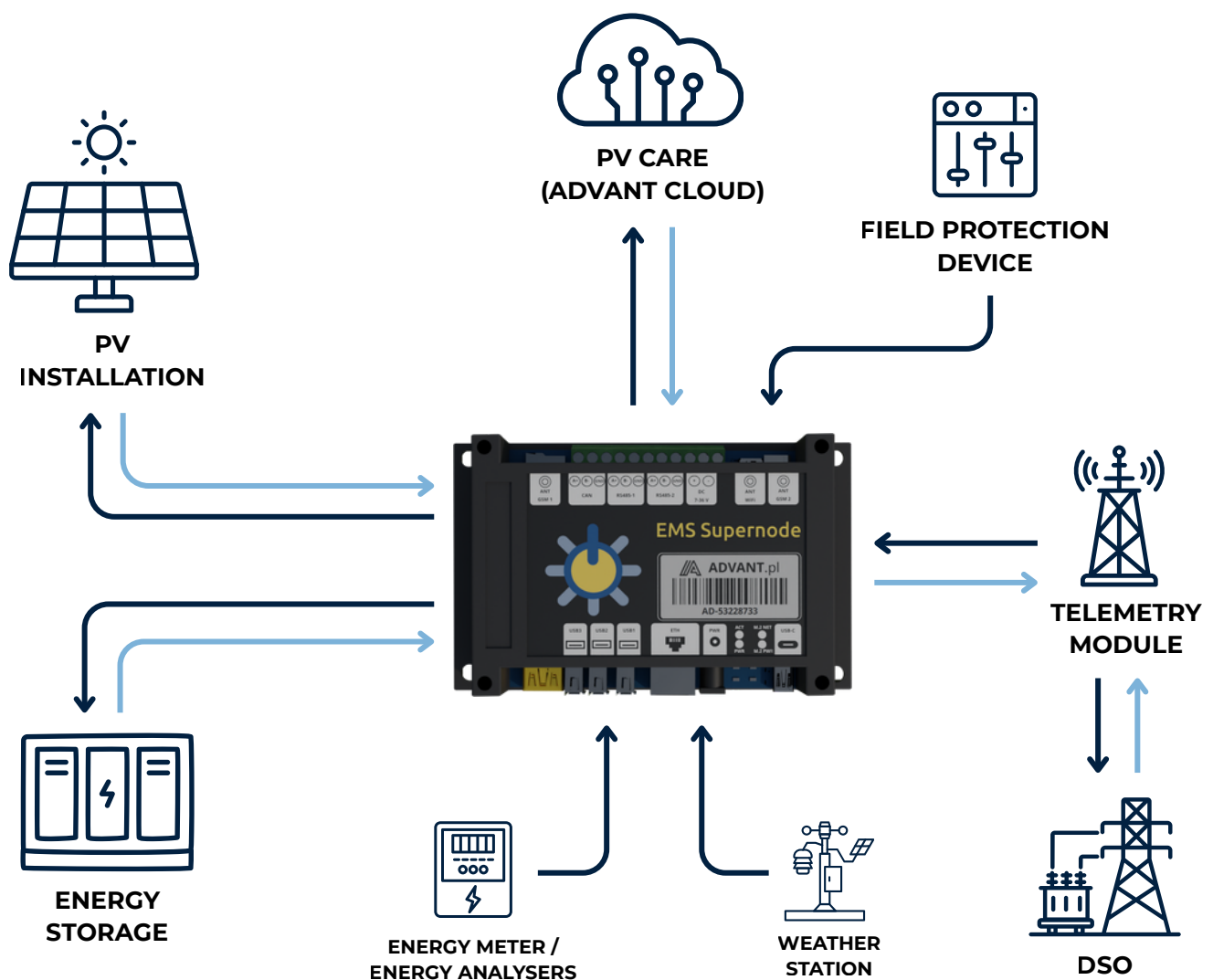
Security



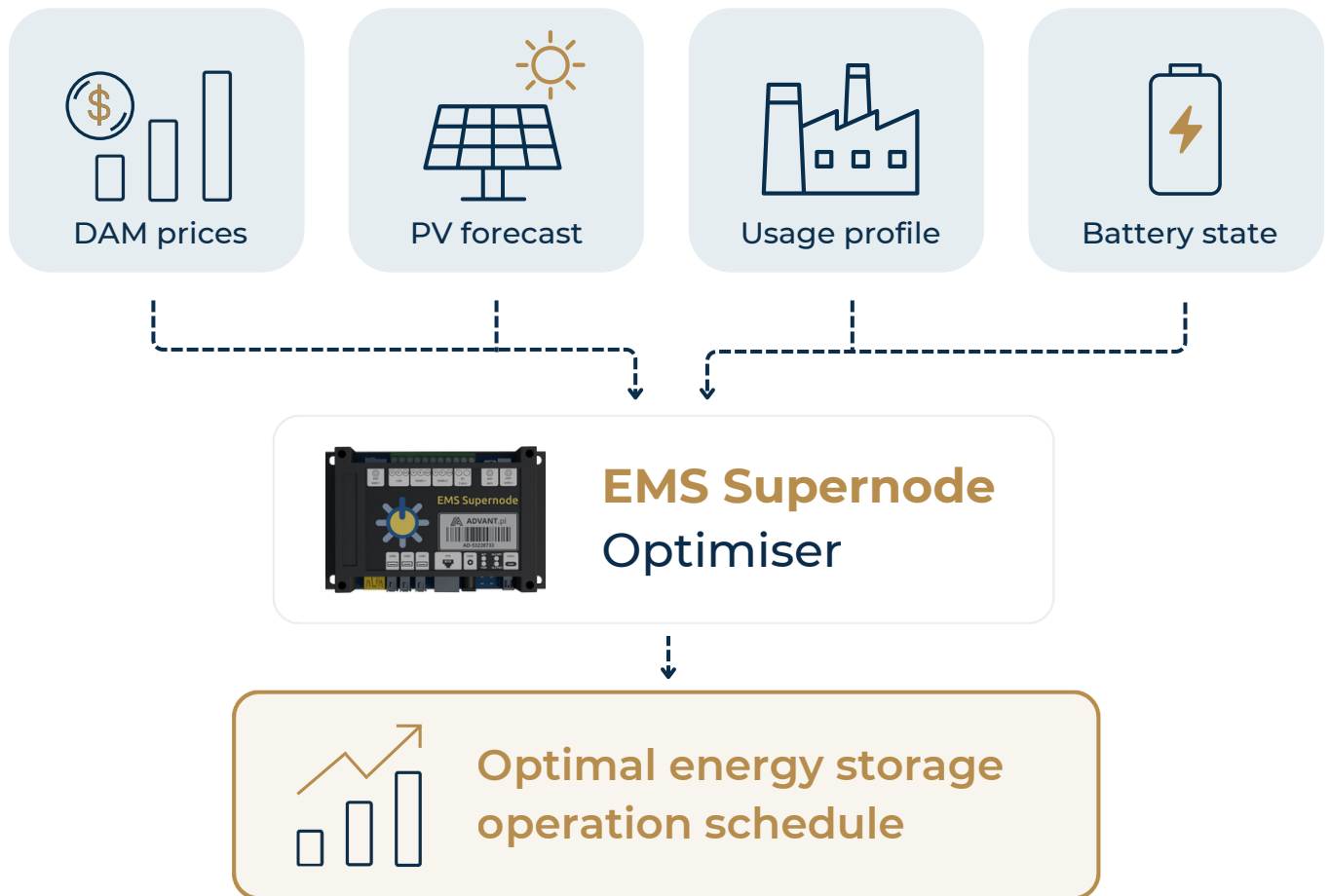
Reliability

What is EMS Supernode?

EMS Supernode is an advanced management system for energy storage (BESS) and PV installations, which optimises energy flows in real time, maximises profits and ensures installation safety.



Intelligent optimisation of energy storage operation



Forecasts the future

Does not react only to the current price. Compares possible scenarios and can store energy for later if using it in subsequent hours will bring greater benefit.

Combines multiple objectives

Simultaneously performs DAM arbitrage, self-consumption, peak shaving, capacity charge and contracted power maintenance. All objectives are analysed together within a single schedule.

Selects the best action

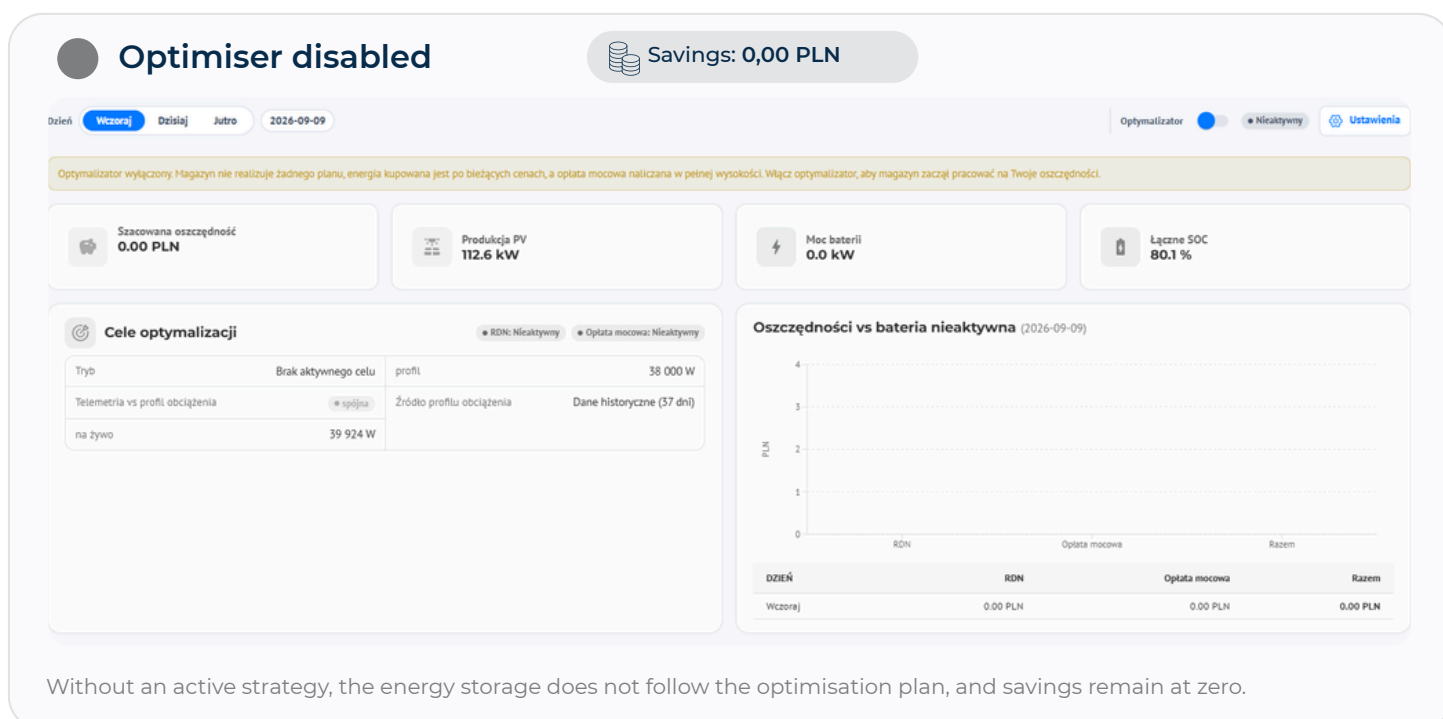
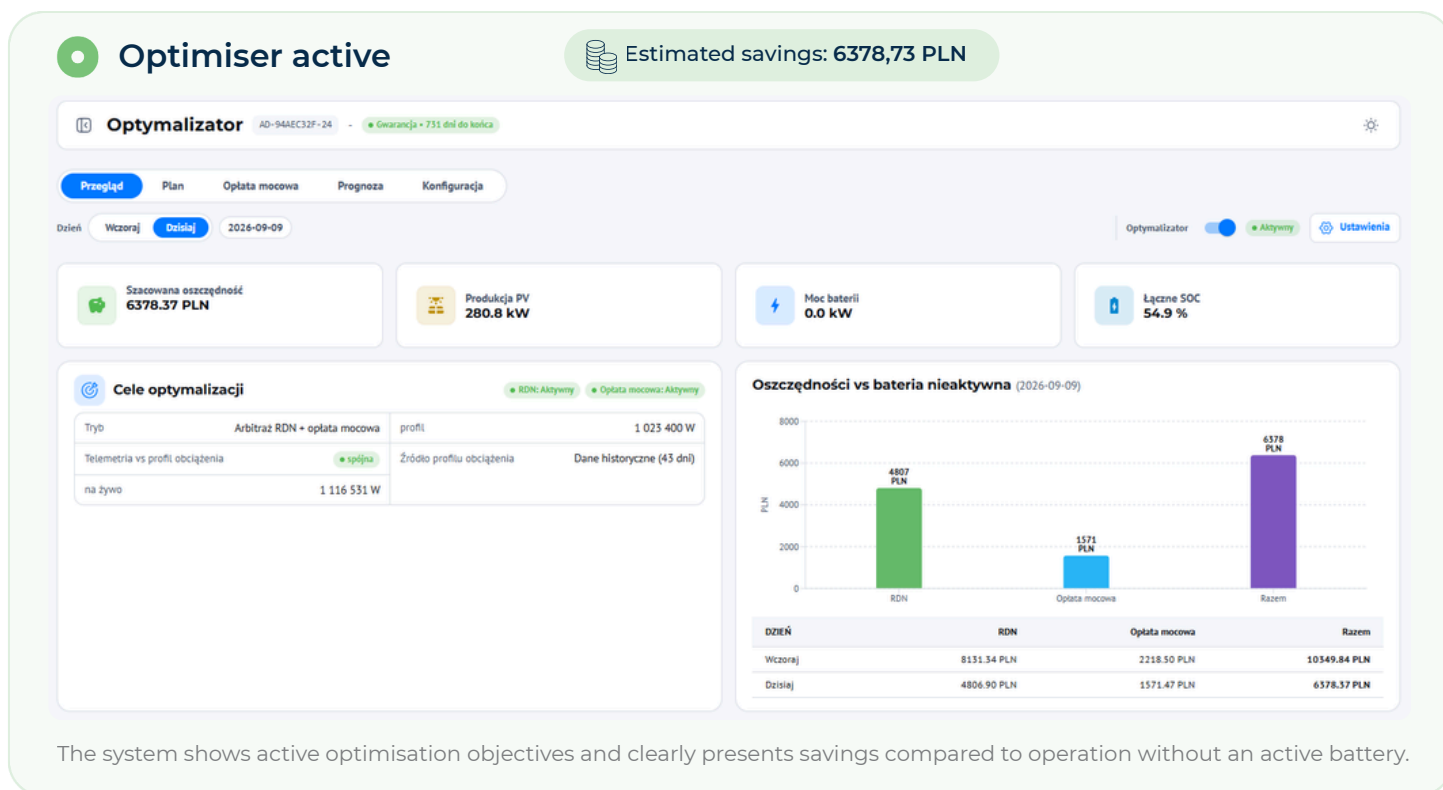
For each time interval, the algorithm selects the most cost-effective operating mode for the energy storage: charging, storing surplus energy, discharging or waiting.

Higher value from every kWh

The optimiser compares the operating cost of a facility with and without energy storage, making it possible to determine the actual economic benefit provided by BESS.

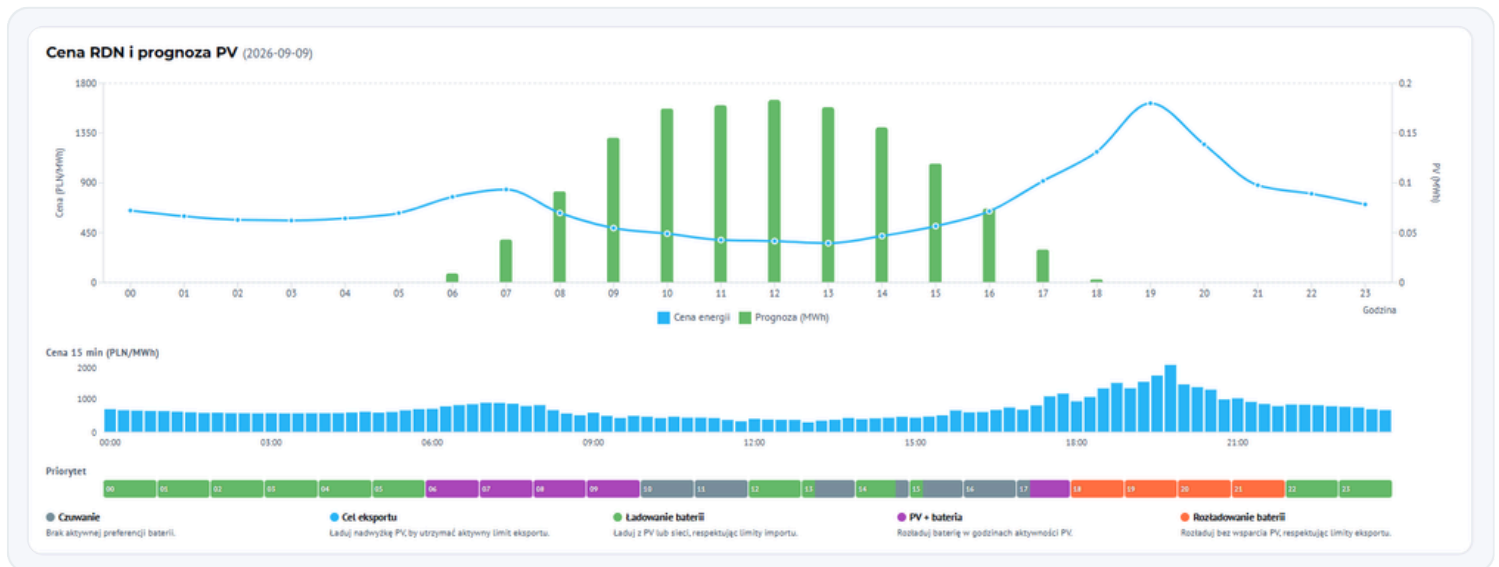
Optimiser in practice

One solution, two different effects. See how activating the optimiser affects your facility's savings level and the way Supernode results are presented.

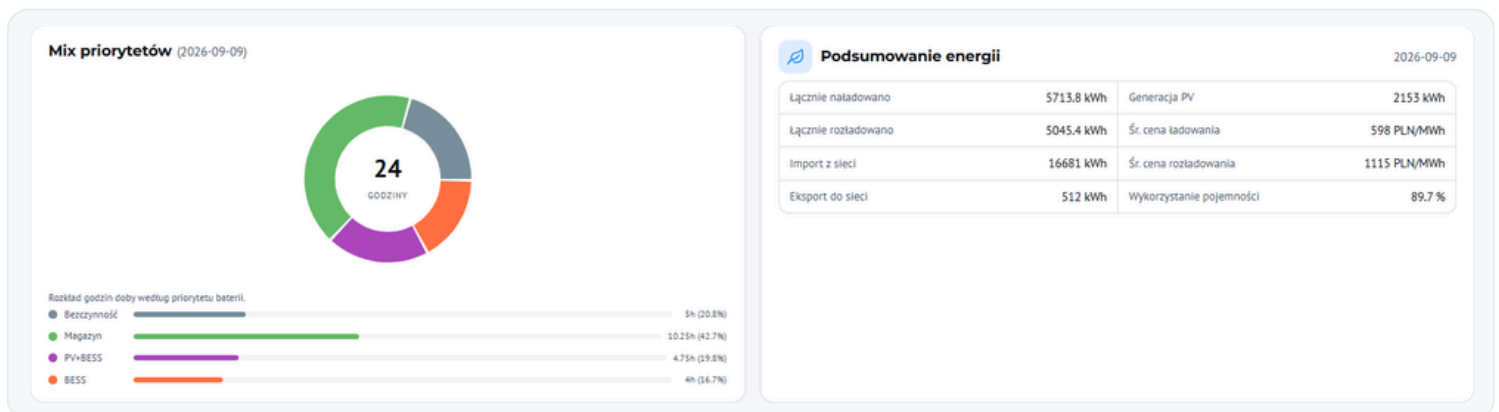


Example day of EMS Supernode operation

An example of EMS Supernode operation showing DAM prices, PV forecast, energy flows and energy storage operation throughout the day.



Energy storage operation plan adapted to DAM prices and forecast PV production.



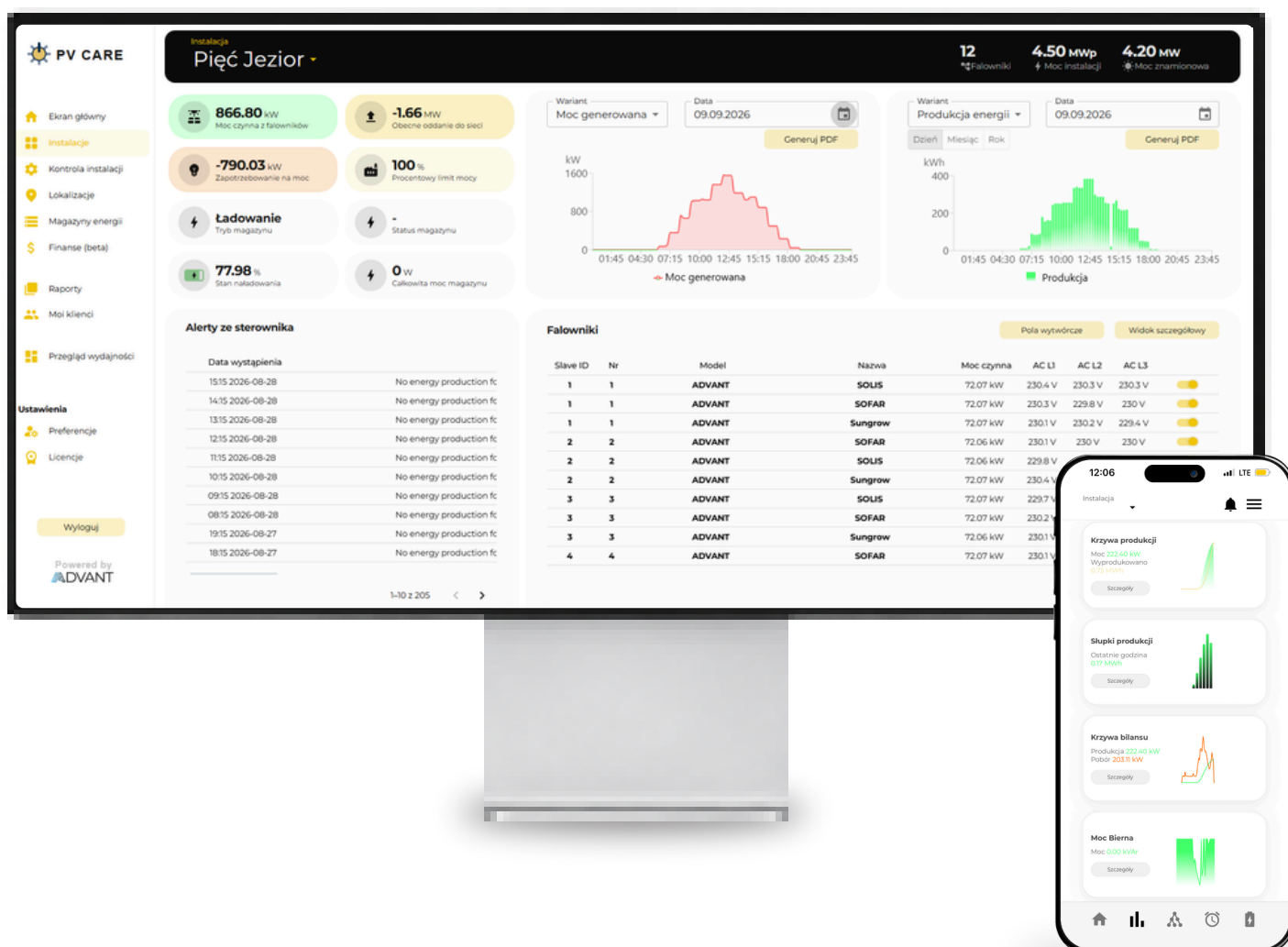
Execution of operating priorities and summary of key installation parameters.



Actual PV production and state of charge compared with the forecast.

Full control in real time

PV Care is a dedicated monitoring system working with EMS Supernode, providing a current view of the key parameters of the PV installation and energy storage. The user has access to production data, energy balance, alarms, event history and reports in one clear panel. This allows the user to quickly assess the operation of the installation and respond to irregularities in real time.



Functions

EMS Supernode



Zero export / limited export PV/BESS
Power export guard



Sitellogger PV/BESS
Meets all DSO requirements



Optimiser
Ensures the most advantageous possible operation of the facility.



PV/BESS operation according to schedule
Create your customised energy storage/installation operation schedule.



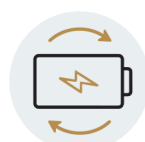
Operation in net-zero mode
Maximisation of self-consumption



Operation according to Day-Ahead Market (DAM) prices



Peak shaving, peak shifting, power oscillation damping



Switching between Grid Forming and Grid Following modes
Ensures a smooth transition between grid-connected and island operation.



P(f), Q(U) regulation and power smoothing



Reactive power compensation of the facility
Reactive power guard



Integration and management of cogenerator operation.



Installation visualisation
Overview in one system

System services for energy storage installations



FCR – Primary reserve

Automatic response to frequency deviations – local, without a signal from the dispatch centre. The controller measures the frequency and responds within seconds.



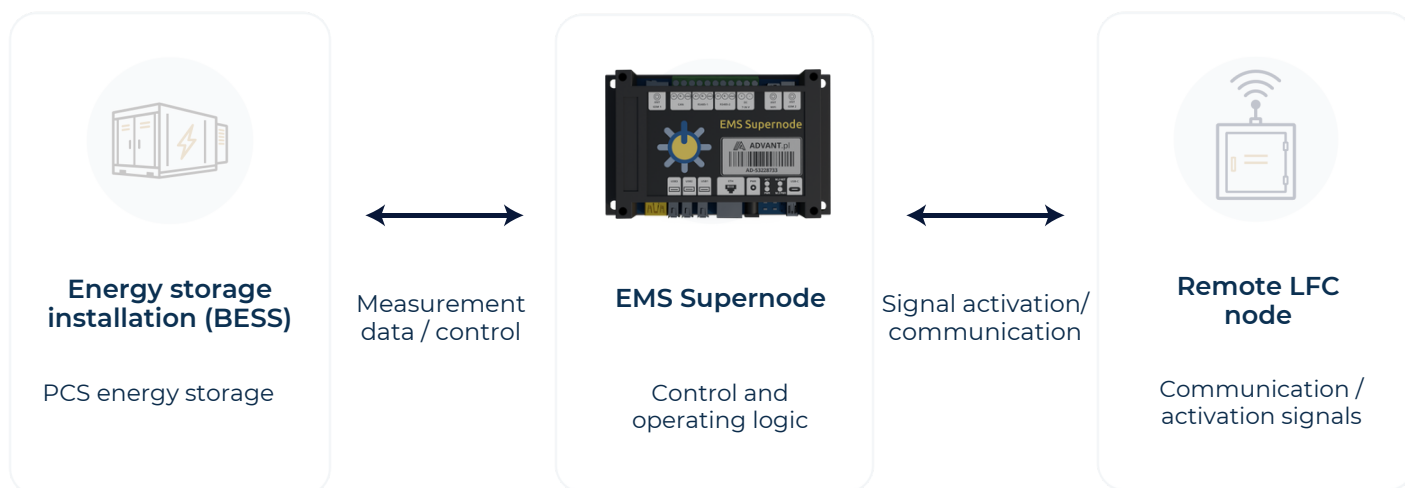
aFRR – Secondary reserve

Full activation within 5 minutes upon a signal from PSE SCADA. Since 2025, Poland has been on the European PICASSO platform – the cross-border market is open.



mFRR – Tertiary reserve

Activation on demand of the industrial system operator. Maximum flexibility – easy to combine with other revenues from the BESS system.



Energy storage installations can provide balancing services for PSE – FCR, aFRR and mFRR. Our system meets the technical and certification requirements. Communication with the aggregator through Modbus TCP, in parallel with DSO control.

Why Advant?



Polish production and data stored within the EU



First place on the PTPIREE list



Experience in hundreds of PV and BESS projects



Reliable service and technical support

Technologia i rozwiązania wyróżniające nas na rynku



Cloud in the EU

Data exclusively within the European Union.
Full GDPR compliance.



Support in accordance with the agreed SLA

Top-level service in accordance with the agreed SLA.



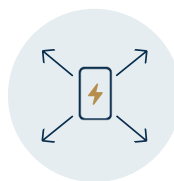
Remote deployments

Carried out with the support of specialists from our company.



Multiple manufacturers simultaneously

Possibility of using devices from multiple manufacturers in a single installation – both BESS and PV.



No power limit

No installation is too small or too large.



Local operation

Independent system operation even without a permanent cloud connection.

Security as the highest priority

EMS Supernode ensures installation safety and energy storage lifetime.



SoC and
temperature control



Overload
protection



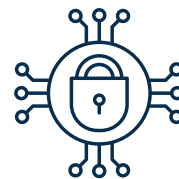
Online testing and
diagnostics



Battery lifecycle
management



Data and event
backup



Updates and
cybersecurity



Alarms and
notifications



Voltage and current
monitoring



Safe system
shutdown

Certificates and standards confirming quality



Certificate ISO 9001 i ISO 14001

Design, implementation and development of systems for managing photovoltaics and energy storage, together with software, control devices and technical support.



Certificate ISO 27001

Comprehensive solutions for managing photovoltaics and energy storage – from software and control devices to implementation and technical support.



Compliance with NC RfG according to PTPiREE guidelines

Confirmation of EMS Supernode compliance with the requirements of the NC RfG network code according to PTPiREE guidelines for connecting installations to the power grid.



Certificate IEC 62443

Security of industrial automation and control systems throughout their entire lifecycle.



Certificate VDE-AR-N 4110 VDE-AR-N 4120

Confirmation of compliance with recognised European standards for connecting and operating photovoltaic installations and energy storage with the power grid.



Certificate PTPiREE

The only PPC controller currently available on the market for type A, B, C and D generators, compliant with the updated PTPiREE requirements – RGA version 2025.





ADVANT

**Let's discuss
your project**



+48 737 884 377



info@advant.pl



www.advant.pl

www.advant.pl

