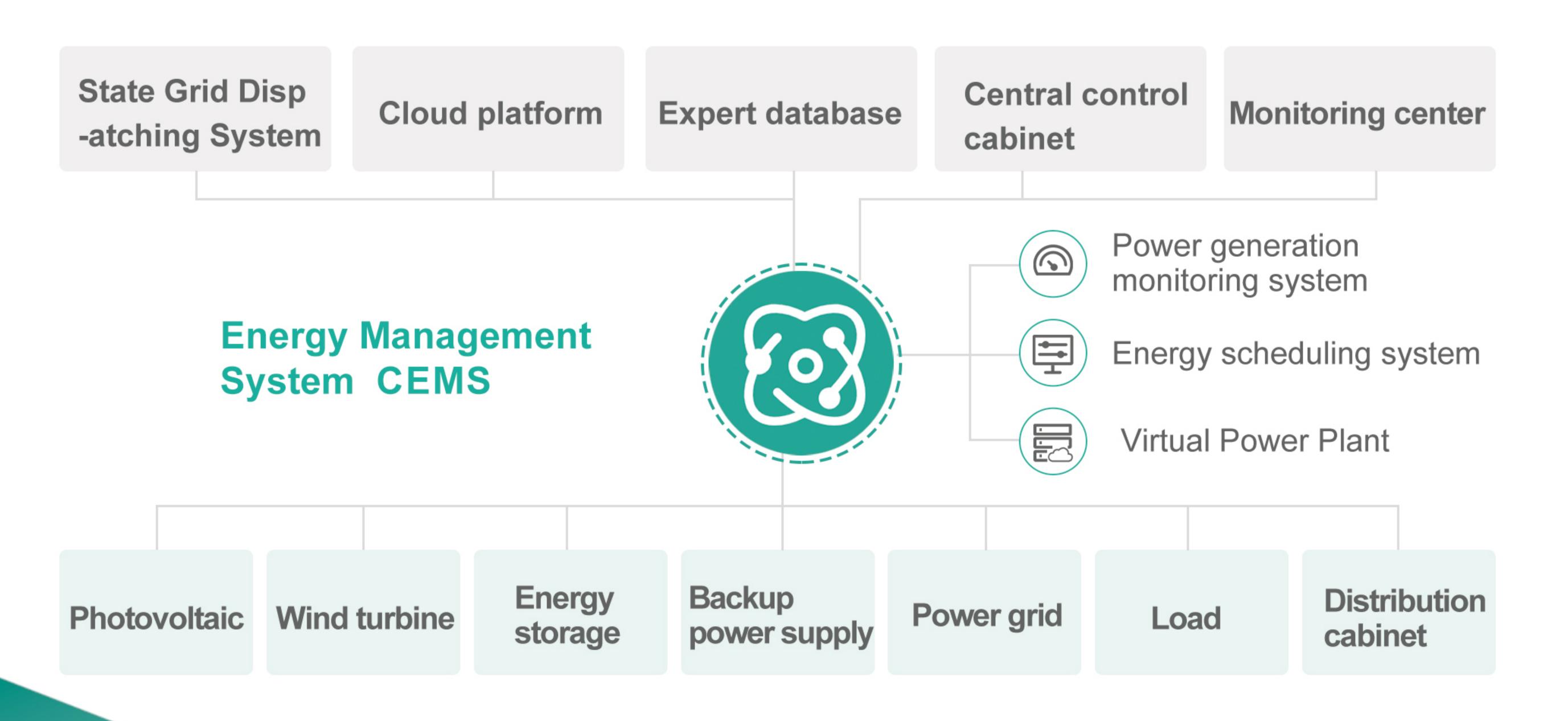


# CEIVIS

#### CLUSTER ENERGY MANAGEMENT SYSTEM

The energy management system that integrating "energy analysis" and "intelligent control" is a fully self-developed energy management and scheduling system developed by Shanghai Electric Distributed Energy Technology Co., Ltd, relying on years of technology accumulation in the field of distributed energy.

It can be connected to renewable energy stations with multiple types of voltage levels ranging from low to high voltage. Our products are suitable for various users on the power generation side, grid side, and user side, meeting application scenarios such as photovoltaic power stations, energy storage power stations, remote islands, commercial micro grids, and large parks.



# Introductions

### PMS · Power Management System

#### Product features

PMS is suitable for grid side energy storage, large-scale integrated wind and solar and energy storage, and large-scale energy system control units. It has functions such as energy storage energy scheduling, primary frequency regulation, grid-connected and islanded switching, and reactive power regulation. Currently, it can achieve high-precision, 100 millisecond level control speed.

#### Equipment installation



#### Core advantages

PMS has high accuracy and flexible configuration. PMS supports multiple communication modes. It has modular design, multiple extended functions, and strong anti-interference ability. Through our innovative control methods, the energy storage coordination controller can carry at least 128 energy storage PCS devices and support multi-layer hierarchical architecture expansion, currently at the most advance level in the industry.

# EMS - Energy Management System

#### Product features Equipment installation

The energy management system is suitable for on-grid, off-grid, and on/off grid systems, with multiple modes such as multi-layer, direct control, intelligent control, etc. It can achieve modular deployment.

#### Core advantages

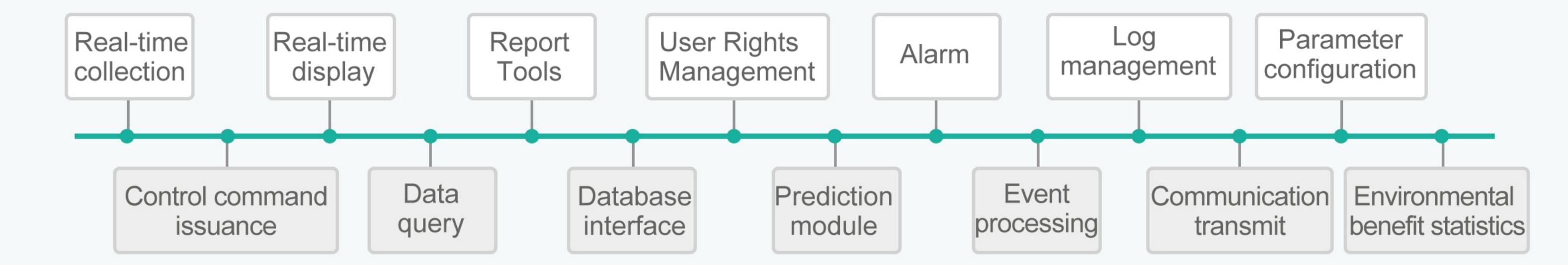
As a comprehensive energy management system that integrates intelligent analysis and scheduling, it has the core advantages of multi-dimensional energy consumption analysis and economic calculation, meeting the needs of energy control in different application scenarios, and has strong adaptability.



## Functions

### Monitoring system functions

CEMS is a computer-based intelligent system for process control and scheduling automation, which has multiple independent system functional modules, such as real-time data collection, control command issuance, database management, customized report printing, event and log management, and data forwarding management. Through various monitoring system functions, it meets diverse customer needs and achieves online monitoring and control of on-site equipment.



#### CEMS Functions

The energy management system has three main functions: power station monitoring, power management, and virtual power plant. It is suitable for five major application areas: photovoltaic power plants, energy storage power plants, remote islands, commercial micro-grids, and large parks, covering three application scenarios: power generation-side, grid-side, and user-side, meeting the diversified functional requirements of on-grid, off-grid, and on/off grid systems.

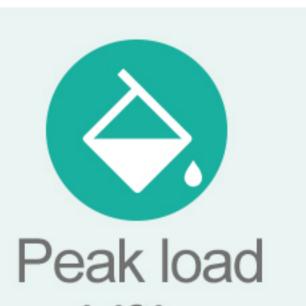


#### \*The main interface of system operation is shown as follows:

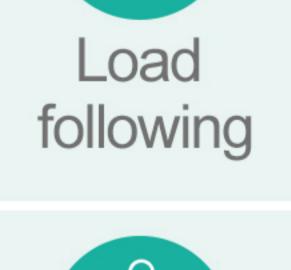


# **Energy Management Core Algorithm**

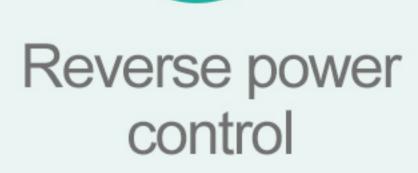
### Core function



shifting









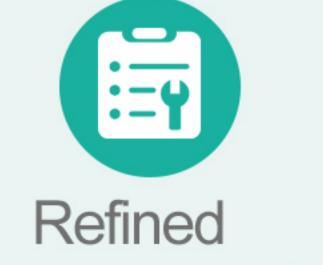


Peak shaving



governance

Black-start



management

AGVC

function



TO TO Demand side response

Virtual expansion

of transformers

Primary frequency

control



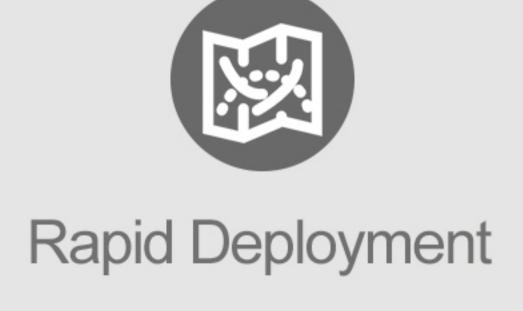


Flatten

fluctuations

(%%)





Chain protection

**Auxiliary function** 

Intelligent temperature

control

# Classic Cases



Energy storage power station Energy storage power applications 30+



Photovoltaic power station Photovoltaic power station applications 50+



PV-Storage-Charging station micro-grid system

PV-Storage-Charging station micro-grid system applications 20 +



Island off grid power station Off grid power station applications 10+

# Patents and Honorary Certificates









