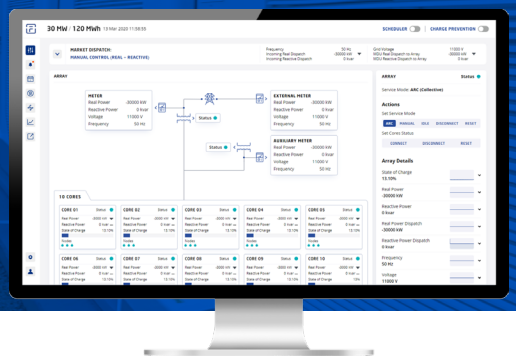
FLUENCE
A Siemens and AES Company

FLUENCE OS

Architecture

The Fluence OS Architecture uses embedded logic and application rules to turn outside market signals into efficiently dispatched power



Fluence's controls architecture can be optimized around the speed of response or to add additional system redundancy. Three main supervisory control layers coordinate the efficient dispatch of storage resources across the system.

At the top is the singular array controls layer, which serves as the collection point of system operating and telemetry data. It contains the embedded MDU application logic based on specific market or grid services to integrate external signals and coordinate system dispatch. The array controller allocates dispatch signals to cores based on their charge level (i.e., discharge commands are biased to cores with higher stored energy, and charge commands toward cores with lower stored energy). Below this layer, operating parameters and constraints are continuously communicated throughout the system architecture (array ↔ core, core ↔ node, and node ↔ cube).

Fluence OS integrates with standard communication protocols, including Modbus TCP, DNP3, and IEC104. Alternative protocol conversion is available on a case-by-case basis.

REMOTE TERMINAL UNIT (RTU)
The interface between Fluence OS and external systems, including grid operators and energy management systems

MARKET DISPATCH UNIT (MDU)
Dispatches power signals to the Array controller as generated by the active MDU applications

ARRAY CONTROLLER
Presents the array as a single system, aggregating data from, and distributing signals to, the cores

CORE CONTROLLER
Aggregates nodes and dispatches power based on signals received from the array controller

NODE CONTROLLER
Connects to the Battery Management System (BMS) and Power Conversion System (PCS)

CUBE CONTROLLER
Monitors the Cube environmental status and passes this information to the Node controller

Controls System Layout