



GE VERNOVA

# FLEXIQ EMS

GE Vernova's fully integrated monitoring and control platform designed to dispatch and optimize the operation of Solar and Storage plants in conjunction with other generation sources.

The complex demands of today's energy industry, ongoing regulatory pressures and increasing security threats drive the need for a robust and secure Energy Management System (EMS) on Solar and Storage sites.

## Improve your Solar and Storage Plant's Productivity and Profitability

Integrating high reliability, superior data integrity, open system access and advanced data management into a single platform, our all-encompassing FLEXIQ EMS supports hundreds of assets (inverters, batteries...) depending on site system configuration.

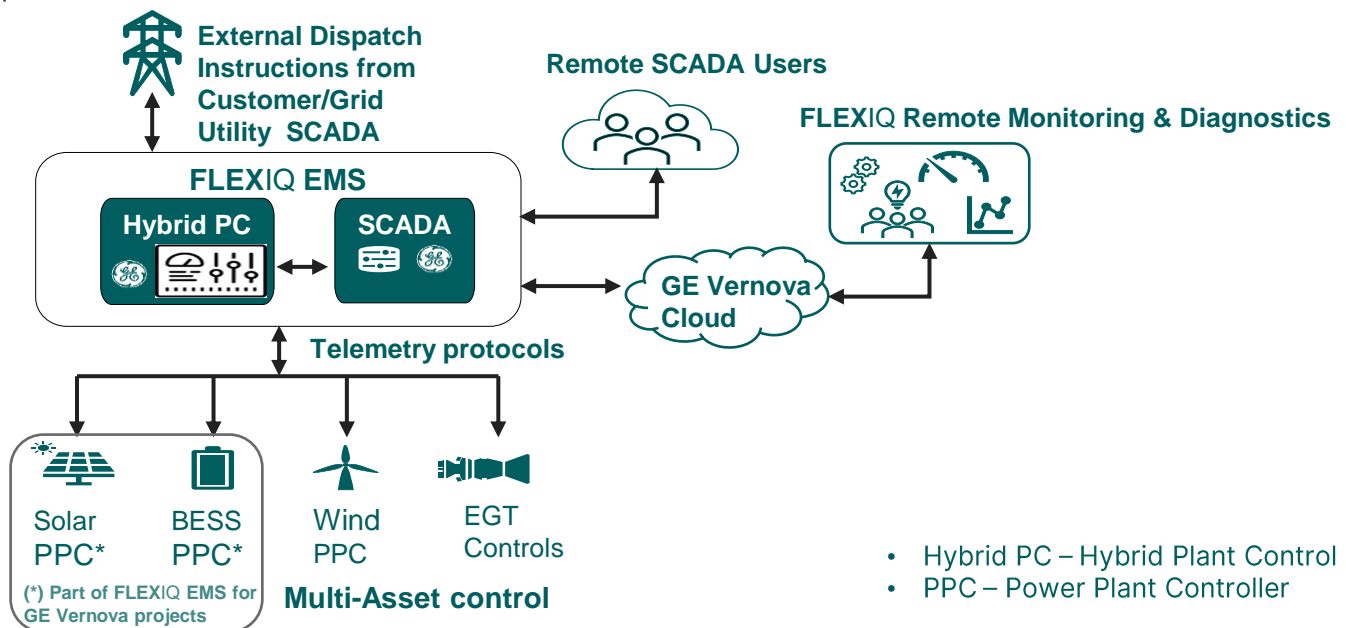
FLEXIQ EMS system includes a Plant Controller built on our **Mark\* Vie** platform and SCADA system built on **Cimplicity** that comes with integrated web-based HMI screens that are powerful and flexible.

## Improved Energy Management for optimized utilization of assets to foster better market participation

Provides many Active & Reactive Power Grid Support Services to help with Grid Stability and participation in different energy markets like Capacity Market, Wholesale market, and provides Balancing Mechanism and Ancillary services based on region specific grid code requirements.

## Architecture

The FLEXIQ EMS system architecture supports Multi-Asset control and Asset to Cloud integration while maintaining the ability to expand through external interfaces as needed to meet the evolving requirements of solar and storage site operations.



**FLEXIQ EMS** provides a unified and dynamic control & software platform to enable optimized system performance to meet individual Solar and Storage site requirements, allowing information to be shared between plant assets and enterprise applications.



## PLANT CONTROLLER

**FLEXIQ Plant Controller** is a renewable power plant management system to provide power services and fulfill grid requirements at the plant POI (point of interconnection)

- Built on GE Vernova’s proven Mark\*Vle platform to address standalone storage, solar PV and hybrid applications.
- Manages the operation of different generation sources in conjunction with one another to ensure grid compliance.

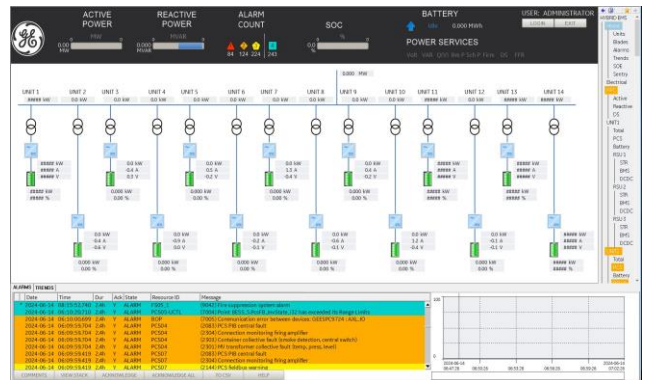
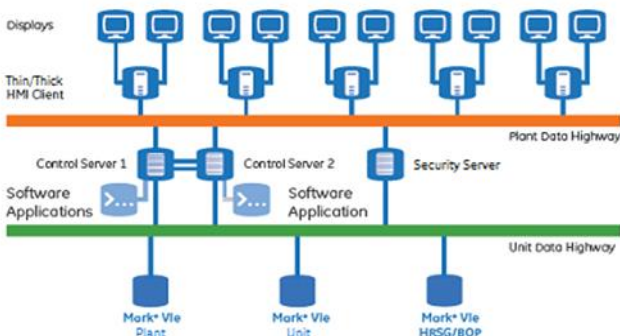
- Plant Control can be customized at the beginning of a project and modified as the grid changes to maximize hybrid project capability.
- Provides closed loop control and fast (150 mS) active power response to support value added grid services (i.e. FFR).
- It interfaces with each Inverter Controller for regulating system voltage, system PF, Active and Reactive Power for entire PV or Storage or Hybrid Plant.

## SCADA SYSTEM

Supervisory Control Functions allow on-site and remote plant operations and coordination with other 3rd party systems

- Data collection from various assets like inverters, batteries, energy meters, protection relays, switchgear etc. and allows owners, operators, and other stakeholders to effectively monitor and analyze the site.
- The Server-client system architecture allows for basic monitoring, control and reporting system, while providing cyber secure interface possibilities with external systems like Utility SCADA, Customer’s Enterprise system or Energy Trading platform etc.

- Delivering connectivity and interoperability with other Solar & Storage plant internal and external systems, the **FLEXIQ SCADA** software provides inverter/battery-level and plant-level user interface screens, alarms and events, as well as advanced data processing.
- **FLEXIQ SCADA** records data to a SQL Server database with its built-in Historical Data Server which makes the data available for short term or long-term analysis and reporting.
- Data can be exported to Excel for comparisons, statistics and regulatory compliance.



## HIGH PERFORMANCE HMI

HMI design increases operator efficiency and awareness using GE experience with global power plant operators. The improved system provides simpler and more intuitive navigation while reducing actionable alarms. It complies with ISA 18.2, ISA 101(the High-Performance HMI Handbook), and other industry standards.



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## STANDARD FEATURES

- GE Vernova's proven Mark VIe Controller
- Secure interfaces to **FLEXIQ** SCADA servers and individual power assets
- Optional Duplex configuration for high availability, redundancy and hot backup
- High end Grid measurement device to measure and digitize plant level Voltage, Frequency with option for remote measurement via Measurement Cabinet
- Optional UPS system to mitigate power interruptions
- Support for various protocols like Modbus, IEC 870-5-101, 104, DNP 3.0 for communication interface with Network operator or Energy trader
- Indoor rated Free-standing, floor mounted, UL and IEC certified Control Cabinet
- Hardwired IO modules with expansion by means of Optional IO Extension Cabinet
- SCADA visibility and control using GE's powerful CIMPLICITY platform.
- Remote access and Monitoring & Diagnostics using **FLEXIQ MD**
- Open, extensible, and scalable client-server architecture
- Thin (default), Thick and Web clients
- Open Standards (ISA, IEC, OPC, ODBC)
- Local or remote control of assets (SU/SD, reserve capacity, select and prioritize active and reactive power services)
- Real-time visualization of key KPIs
- Alarm management and escalation
- System sentry: monitor comms/health of any hardware component, plant and unit controls, inverters, batteries
- Full data collection and logging to a SQL Server database
- Events log and Sequence Of Events
- Analyze real-time or historical alarm information
- Trending for real-time or historical operational data
- Up to 20 years of local data storage with auto backup
- Critical asset protection with a purpose-built Cyber security solution composed of zero trust firewall, updated switch and modern network segmented architecture.
- Malware protection with anti-malware software to deter, detect and prevent malicious code
- Support for advanced controls like time-based actions, Black start, Islanding

## 2 DIFFERENT SCADA PACKAGES TO FIT YOUR NEEDS

**Secure Edition:** Provides the standard features that comes with most important default cyber security measures like network segmentation, use of firewall for secure perimeter, hardening, secure user authentication etc. The server hardware is installed inside a rack that can be mounted inside a physically secured substation or a control room.

**Secure+ Edition:** In addition to the Secure package, this edition provides advanced cybersecurity features such as use of Domain controllers, Backup service, identity and access management, SIEM (Security Information Event Manager) and security controls aligned to NERC CIP requirements and ISA/IEC 62443 for international regulatory requirements.

More information and Contact us via [www.governova.com/solar-storage/flexiq](http://www.governova.com/solar-storage/flexiq)

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