GE VERNOVA

HOW GE VERNOVA'S EMS ENABLES HYPERSCALERS SCALE-UP GOALS

Antoine Garcia-Villagrasa

Grid automation & software - Industry growth leader

28th of May 2026

© 2026 GE Vernova and/or its affiliates. All rights reserved.

Data Center Customers' Pain Points and Priorities



Sources: VOC Questionnaire from GEV customers

Uninterruptable power supply + behind the meter

Back-up and behind the meter solutions are to lower the risk of outages and control the source of power.

Grid Equipment Capacity

Customers are struggling with lead time availabilities for grid equipment for the rapid Data Center expansion.

PPA's

Power Purchase Agreements are looking to lock in energy prices to control operational costs, as well as giving access to tax benefits and REC's.

Grid Connections

"We'll have whatever electrons [we] can get our hands on" – US Customer, highlighting the urgency of energy capacity and availability to get power to the data center.

Service Reliability

Data Center Customers are looking to maintain a 99% + reliability of their assets, meaning maintenance must not interrupt operability.

© 2026 GE Vernova and/or its affiliates. All rights reserved.

GE Vernova Offering for Data Centers

GE VERNOVA

Consulting / Services

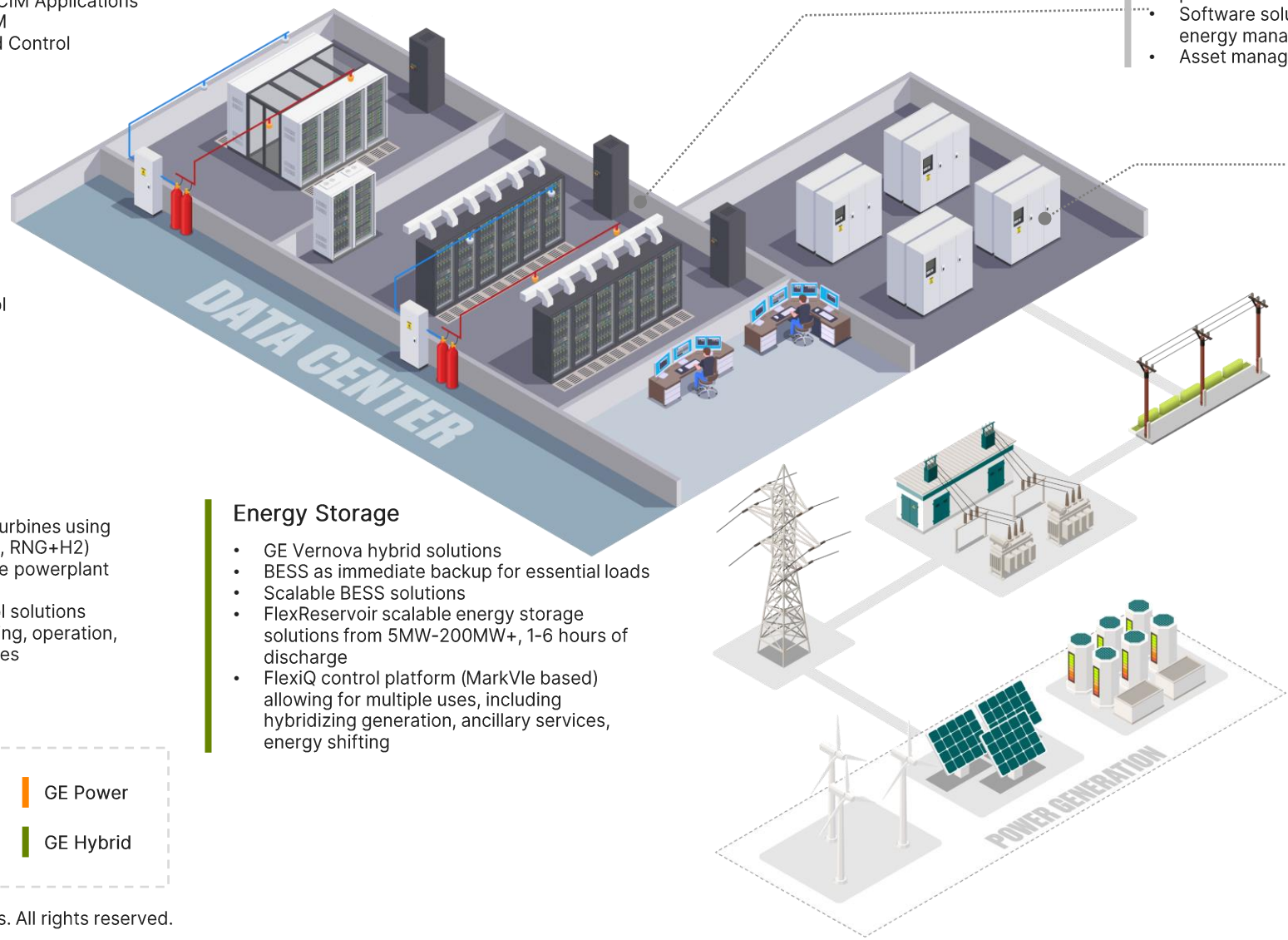
- Electrical Network Modeling – DCIM Applications
- AI/ML Reduce emission and PHM
- Smart System Enhancement and Control
- Microgrid and Cogeneration

Renewable Generation

- Wind turbine generators (2.8 - 6. 1MW range)
- Integration/optimization
- Generator protection and control
- Capacity firming
- LTAs, 20 - 40 yr. turbine life

Thermal Generation

- Aeroderivative/heavy duty gas turbines using more sustainable fuels (SAF, Bio, RNG+H2)
- Simple cycle and combined cycle powerplant solutions
- Generator protection and control solutions
- Turbine life cycle services (training, operation, outage and cybersecurity services
- CHP and CC solutions



Energy Storage

- GE Vernova hybrid solutions
- BESS as immediate backup for essential loads
- Scalable BESS solutions
- FlexReservoir scalable energy storage solutions from 5MW-200MW+, 1-6 hours of discharge
- FlexiQ control platform (MarkVIe based) allowing for multiple uses, including hybridizing generation, ancillary services, energy shifting

- Communication devices (Ethernet switches, protocol converters)
- Software solutions (power monitoring systems, energy management system)
- Asset management, monitoring and diagnostics

LV/MV Switchgear

Protection relays for LV/MV Switchgear

High Voltage Substations

- Transformers
- Gas Insulated Switchgear (HM/MV)
- (HV) circuit breakers and disconnector switches
- Instrument transformers
- Capacitors, reactors and VR
- Bushings, arresters & insulators
- SF6-free solutions
- GIS monitoring
- Protection and control
- Advanced automation applications
- Microgrid control and PMS
- Services (engineering and consulting, LCM, training, msas)
- Electrical balance of plant
- Ancillary services
- Asset conditions monitoring

Grid Solutions
GE Power
GE Advanced Research Center
GE Hybrid

© 2024 GE Vernova and/or its affiliates. All rights reserved.

Data Center Technology Solutions screening

GE VERNOVA

Grid Connection	Bulk Generation	Onsite Power Generattion	Power Distribution	Software & Svcs (Power)	Cooling	Software & Services/IT Infrastructure
GIS/AIS FACTS 300Kv GIS scaling & Engineering expertise	HDGT (Heavy Duty Gas Turbine)	Microgrid	MVDC DC to DC converter	Scalable Platform: Substation Automation System + PowerNode Microgrid and EMS	Thermosyphon (Zero energy Zero Water Cooling)	Cybersecurity Solutions
CBs	SMRs (cogeneration)	MVDC for PV+BESS	MV UPS	PQ Metering	CHP – integrated Chiller Solution	Device Management
PTR/400KV g3 Ester oil Xfrms		SMRs (cogeneration)	STATCOM Sync Condenser	EnergyAPM		
		HDGT (Heavy Duty Gas Turbine)	Solid State Xfmr for DC/DC & AC/DC apps	Relays		
		Aeroderivative		Energy Efficiency		
		Thermal / Renewable hybrid		Integrated Digital Substations		
Power Workstream				Digital Twin		

Power distribution	Back-up power	Power conversion
Substation optimization	Optimized green back-up	AC/DC current topology
Medium voltage loop	Integration of solar & energy storage	Integration

Copyright 2023 © GE VERNOVA. Proprietary & Confidential.

Power Generation | Technical Models
Gas/H2 Turbines option

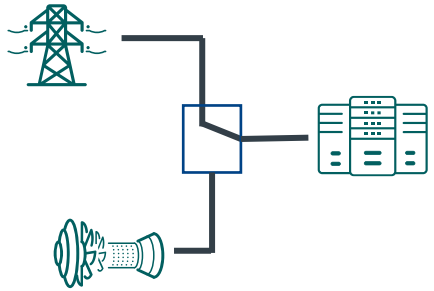
GE VERNOVA

1- BRING YOUR OWN POWER



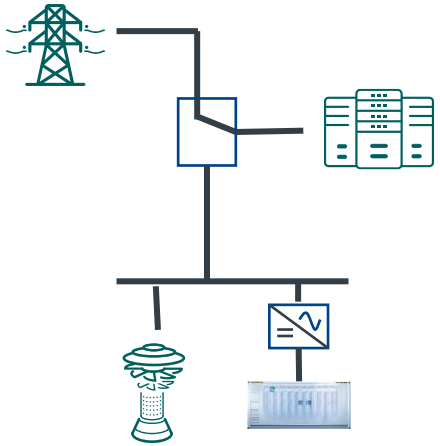
- ✓ Simple Cycle Aeroderivatives bridging the utility connection gap: High reliability (NG/H2)
- ✓ Heat recovery options for chilling loads
- ✓ Combined Cycle with CCS : High efficiency low carbon

2- BACKUP GENERATION



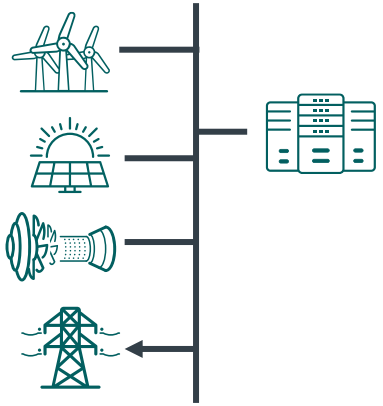
- ✓ 5-minute backup
- ✓ Revenue generation
- ✓ Floating standby unit(s)
- ✓ Higher power density
- ✓ Overcome high electricity pricing - Arbitrage

3 - HYBRID BACKUP



- ✓ Immediate backup
- ✓ Revenue generation
- ✓ Track record
- ✓ Thermal Hybrids Track record - EGT™

4 - MICROGRID



- ✓ Low carbon emissions
- ✓ High availability factor
- ✓ Lower blended LCOE
- ✓ Revenue generation

© 2024 GE Vernova and/or its affiliates. All rights reserved.

Energy Management

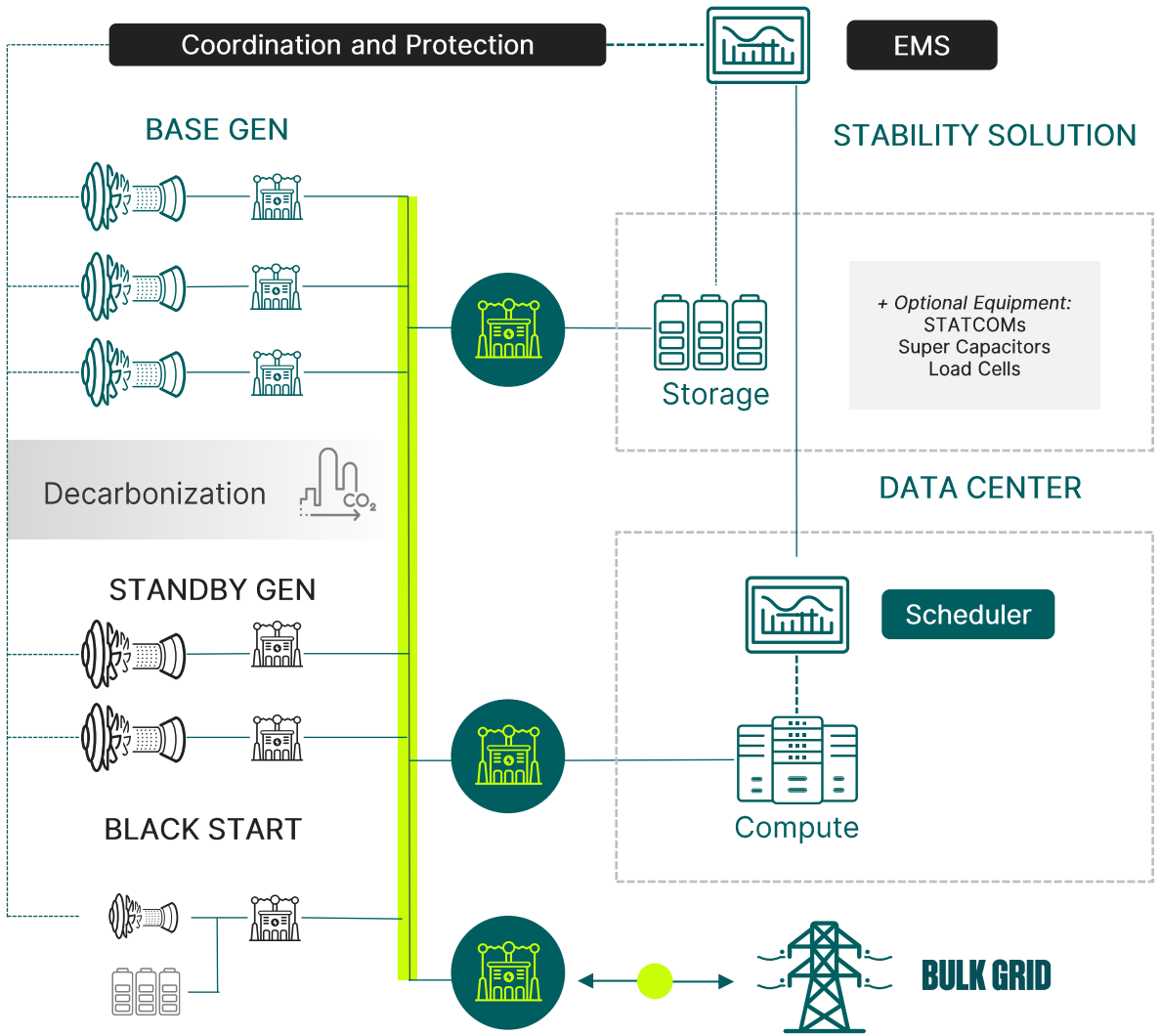
GE VERNOVA

KEEP YOUR DATA CENTER POWERED, STABLE AND OPTIMIZED IN EVERY OPERATING CONDITION.

Maintain real-time control your data center’s power system in every operating mode – optimizing performance when grid-connected, ensuing seamless transitions, and sustaining stable, reliable operation when islanded.

© 2026 GE Vernova and/or its affiliates. All rights reserved.
GE and the GE Monogram are trademarks of General Electric Company used under trademark license.

GE Vernova EMS to Orchestrate Datacenter Sites



EMS KEY MISSIONS

Control Room - Utility Grade EMS

- Advanced Network & Generation Management
- Enterprise Modeling Management
- Forecasts Management
- Advanced Simulations & Studies
- Markets Participation & Settlements
- Asset Performance & planning analytics
- Enterprise data federation & exchange

Energy Management & Optimization

- Grid Operational Modes & Re-Sync
- Day-Ahead Optimum Dispatch & Energy Mix
- BESS State of Charge management
- Forecasting
- Real-Time Digital Simulation

Power & Loads Management

- Capacity & Reserves
- Load balancing across GTs + Storage
- Load management
- Frequency / Voltage / Power Management
- Local Synchronization
- Blackstart

Scalable, Interoperable & secure SCADA Infrastructure

- Automation & Controls
- Data I/O management
- Communication Network & Security

© 2026 GE Vernova and/or its affiliates. All rights reserved.

EMS Benefits & Outcomes

Always On, Always Balanced, Always Optimized

GE VERNOVA

KEY SOLUTION BENEFITS

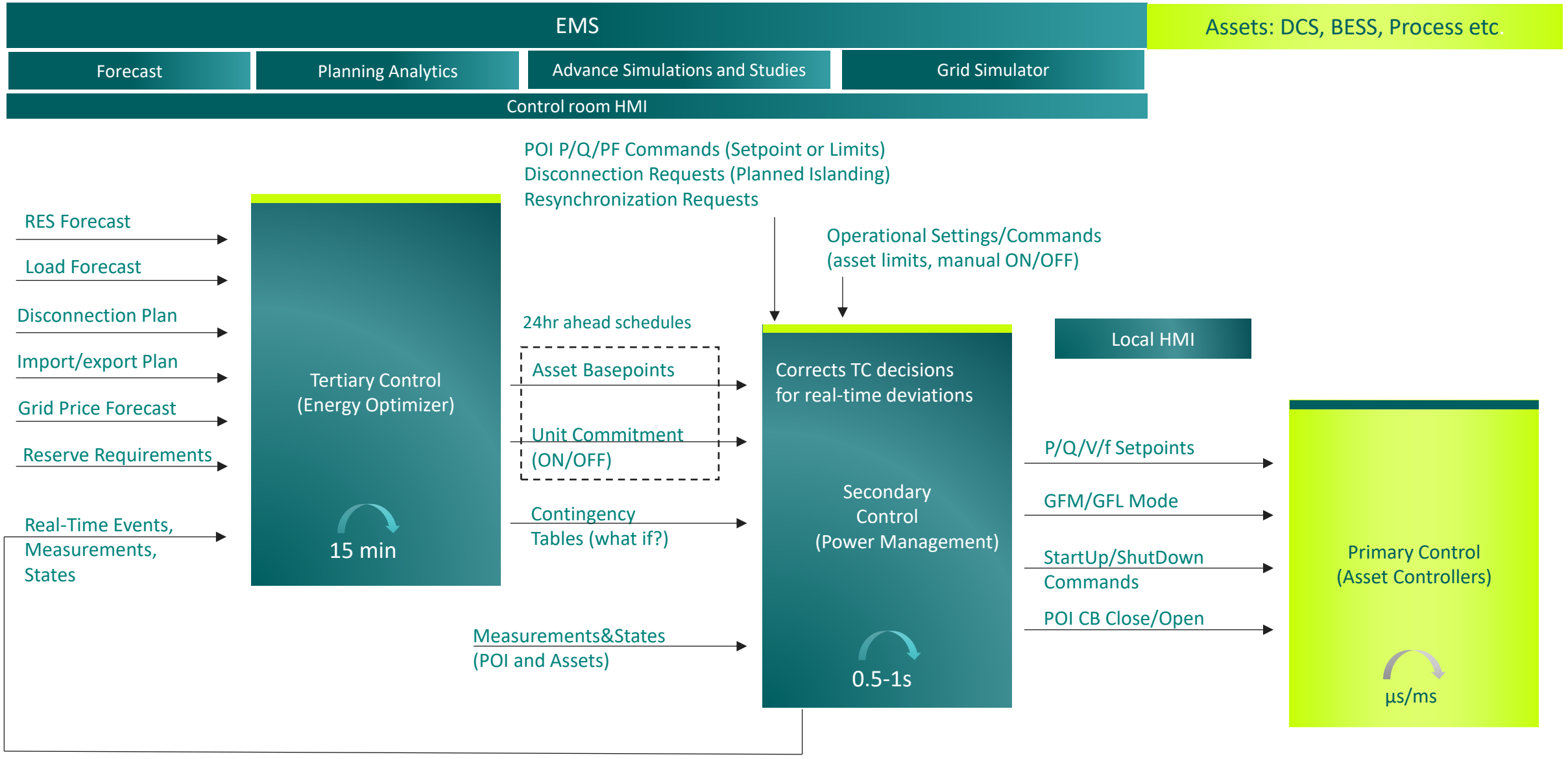
- **End-to-End and Turnkey:** full stack from communication to controls and UI, from design to commissioning and remote services
- **Optimized & Scalable:** computes the optimal mix and grows with your needs (costs, CO2, asset performance)
- **Expanded SW Capabilities:** modular platform leveraging the broader GEV portfolio
- **Regulatory Compliance:** aligned with regional grid codes, cyber and operational standards
- **Robust, Reliable, Secured:** hardened, redundant, interoperable and cyber-protected architecture
- **Flexible Deployments:** fits centralized, distributed architecture designs, scales along with power & loads
- **Vendor Agnostic:** integrates with third-party assets and protocols seamlessly to avoid vendor lock-in

VALUE & KEY OUTCOMES

- ✓ **Fast Growth Enabler:** reduces dependence on grid connection queues, enabling faster datacenter expansion
- ✓ **Energy Savings / Revenues:** optimizes dispatch to lower energy costs and unlock new monetization opportunities
- ✓ **Power Quality:** mitigates grid-operator penalties and protects sensitive compute loads
- ✓ **Asset Performance:** improves efficiency and lifetime, defers CAPEX and optimizes OPEX across assets
- ✓ **Sustainability Goals:** lowers CO_2 footprint and reduces carbon certificate and compliance costs
- ✓ **Uninterrupted Operations:** minimizes downtime risk and protects business continuity at AI-scale loads

© 2026 GE Vernova and/or its affiliates. All rights reserved.

GE Vernova EMS – Levels of control



GE Vernova EMS – Overview

GE VERNOVA

EMS – Functional overview

Optimization Functions

- Market Participation
- Operations Planning
- Forecasting
- Scheduling
- PV Smoothing
- Mode and Event MGMT
- Portfolio Optimization
- Optimal Dispatch
- SOC Management

Real-Time Functions

- Islanding Management
- Power Exchange
- Load Sharing
- Voltage Management
- Frequency Control
- Re-Sync
- Reserve Capacity Calc
- Load Management
- Power Factor Management
- Blackstart

Grid EMS

- AEMS / ADMS / DERMS
- APM & Analytics
- Transactional

- Automation & Control
- Data I/O management
- Communication Network & Gateway

EMS Controller



IED

Communication Network

Substation Bus Bar

IED

- Integrated UI/UX
- SW functions
- Cybersecurity

Grid Switch Yard



- Other sites
- Grid Operators

Generation



- Natural Gas
- Diesel
- CoGen/CHP

Renewables

Solar PV, Hydro, Wind, Bio-Gas



Storage

Battery, Thermal, Water, Air



Loads

Critical/non-critical



HVAC, Process, Lighting, EV, etc.

Interoperable, Secure & Vendor Agnostic Solution

EMS Optimization functions

Minimize cost & carbon, maximize reliability

GE VERNOVA

- Gas/Grid Pricing
- 24hr PV/Wind Forecast
- 24hr DC Load Forecast
- BESS State of Charge

Inputs

Optimizer

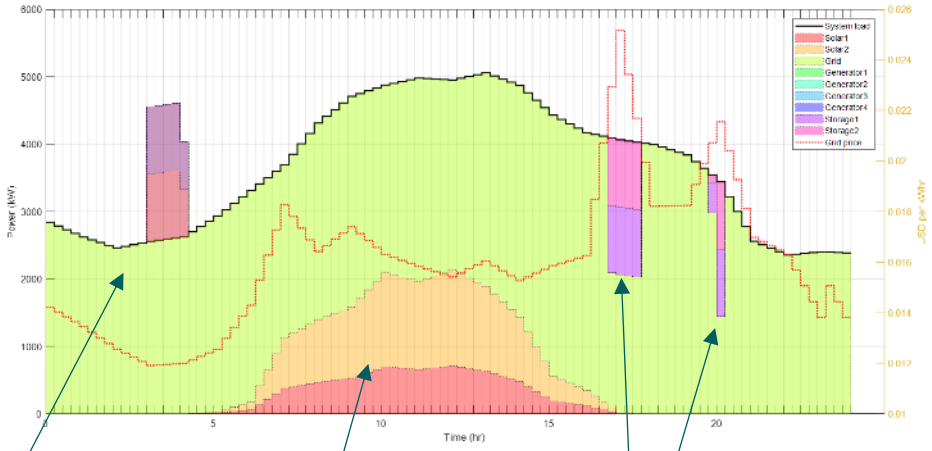
Operational
Asset Capabilities, status, emissions, constraints, etc.

24hr ahead, 15min Granularity

Optimum setpoint

Outputs

EXAMPLE – ECONOMIC DISPATCH



Charge BESS during Low Grid Prices

Prioritize Lower Cost / Emission Energies

Discharge BESS during High Grid Pricing

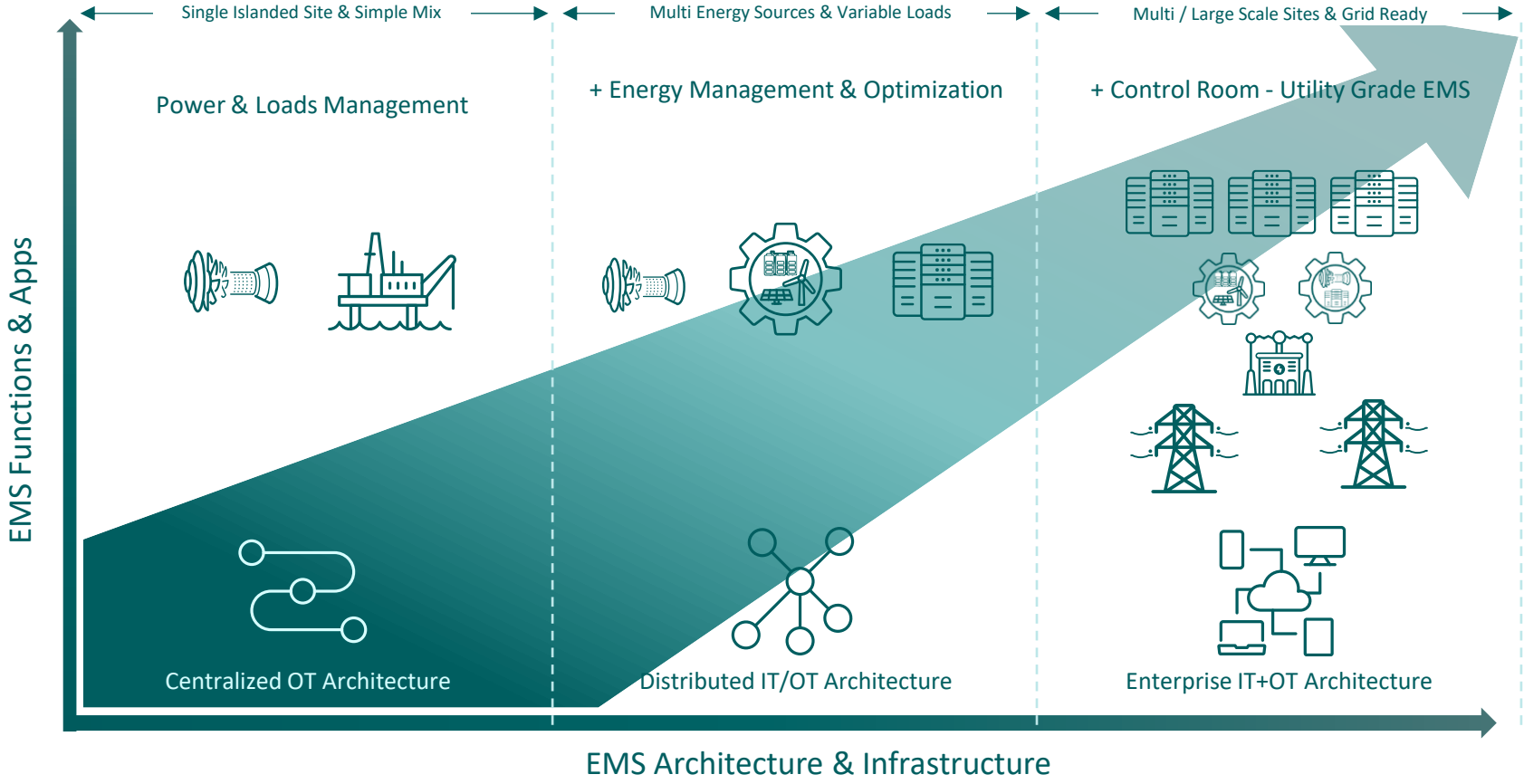
KEY SOLUTION BENEFITS

- ✓ **Lower energy cost**: Day-ahead commitment with 15-min re-dispatch tracks grid/gas prices to minimize $/MWh and avoid imbalance penalties
- ✓ **Lower emissions**: Carbon-aware scheduling prioritizes renewables and high-efficiency units, coordinated with BESS to cut tCO_2/MWh
- ✓ **Reliable schedules**: forecasts + quarter-hour re-optimization maintain reserves and ramp limits to hit SLAs consistently

© 2026 GE Vernova and/or its affiliates. All rights reserved.

A Scalable & Composable Solution

GEV EMS Scales as a tailored solution to meet your business needs & objectives



Maximize Uptime. Deploy Faster. Optimize Energy. Scale Without Limits.

GE VERNOVA

SOLUTION BENEFITS

- End-to-end & Turnkey
- Optimized & Scalable
- Expanded SW Capabilities
- Regulatory Compliance
- Robust, Reliable, Secured
- Flexible Deployments
- Vendor Agnostic
- Remote Services

VALUE & OUTCOMES

- Fast Growth Enabler
- Energy Savings / Revenues
- Power Quality
- Asset Performance
- Sustainability Goals
- Uninterrupted Operations

© 2026 GE Vernova and/or its affiliates. All rights reserved.

-GE VERNOVA CONFIDENTIAL-

EMS at a glance



- Accessible from any electrical room
- Consistent workflows, simplified operations
- Reduces complexity and training requirements

DEMO AVAILABLE

© 2026 GE Vernova and/or its affiliates. All rights reserved.



© 2026 GE Vernova and/or its affiliates. All rights reserved. GE and the GE Monogram are trademarks of General Electric Company used under trademark license.

THANK YOU

© 2026 GE Vernova and/or its affiliates. All rights reserved.