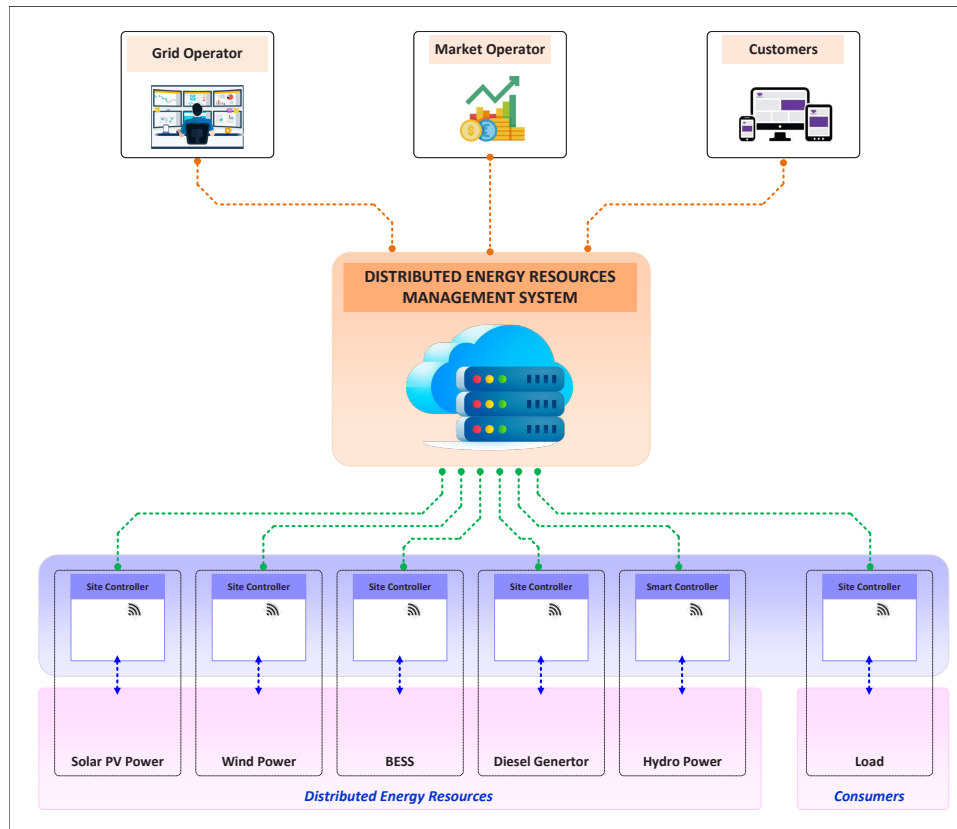


@DERMS™ offers scalable, cloud-based solutions for real-time monitoring, control, and data analysis of distributed energy resources. It empowers dispatch centers and power producers with full monitoring, control, and optimization of large-scale energy management. Built for future growth, it supports integrating renewable into virtual power plants (VPP), enhancing market participation and cost efficiency while ensuring reliable operations.



SaaS @DERMS™ System Overview

Why Choose Our DERMS Solution:

- ◆ **Comprehensive Monitoring:** Real-time supervision and control of distributed energy resources.
- ◆ **Maximize Efficiency:** Balances power flows, prevents overloads, and maintains grid power quality.
- ◆ **Flexible DER Operation:** Manages DERs to ensure stable performance and prevent grid issues.
- ◆ **Optimal Commitment:** Supports transparent generation scheduling for grid security.
- ◆ **Reduce Operational Costs:** Minimizes generator cycles, improving reserves and cutting costs.
- ◆ **Seamless Integration:** Compatible with various protocols and energy sources.
- ◆ **Accurate Forecasting:** Enhances power generation predictions for smoother grid management.
- ◆ **Auxiliary Services:** Supports DER participation in voltage and frequency regulation.
- ◆ **Future-Ready Integration:** Prepares resources for Virtual Power Plant (VPP) integration, enhancing market participation and grid flexibility.

System Architecture:

- ◆ **Central Cloud-Based or On-Premise Platform:**
 - ◆ **Real-Time Management:** Centralized cloud or on-premise platform for real-time data collection, monitoring, and control of DERs through secure infrastructure.
 - ◆ **Remote Access:** Web-based interfaces enable operators to monitor, control, and analyze DERs from any location.
 - ◆ **Advanced Forecasting & Scheduling:** Uses algorithms for accurate generation forecasts and optimized dispatch.
 - ◆ **Scalability and Redundancy:** Dynamically scales resources with built-in redundancy for high availability.
- ◆ **On-Site System:**
 - ◆ **Site Controller (ATS SmartDER/SmartDCG):** Provides local data acquisition and control at DER sites, ensuring secure, encrypted communication with the central cloud or on-premise system.

@DERMS™ - Revolutionizing the Management of Distributed Energy Resources

1. Comprehensive Monitoring, Data Collection and Processing:

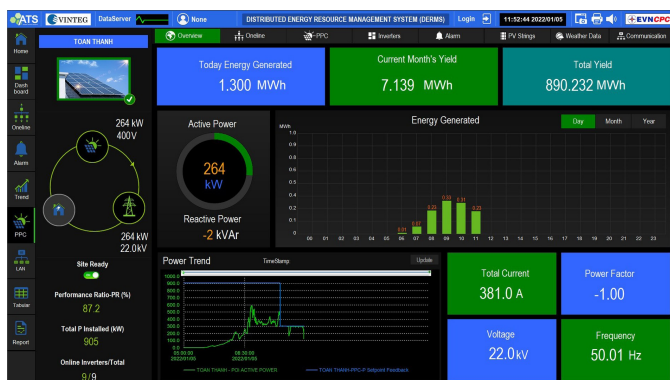
- ◆ Real-Time Supervision: Monitors DERs (solar, wind, hydro, BESS), collecting operational data, metered values, and alarm statuses.
- ◆ Continuous Data Acquisition: Ensures seamless data collection and sharing with SCADA systems using standard protocols.
- ◆ Efficient Data Processing: Handles large data volumes in real time, delivering accurate status updates and supporting timely grid control actions

2. Historical Data Management & Analysis:

- ◆ Integrated Time-series Historical Information System (HIS) for long-term storage and retrieval of operational data, enabling in-depth reporting and analysis.
- ◆ No-SQL database structure supports high-capacity storage while maintaining fast query responses.

4. Monitoring & Reporting:

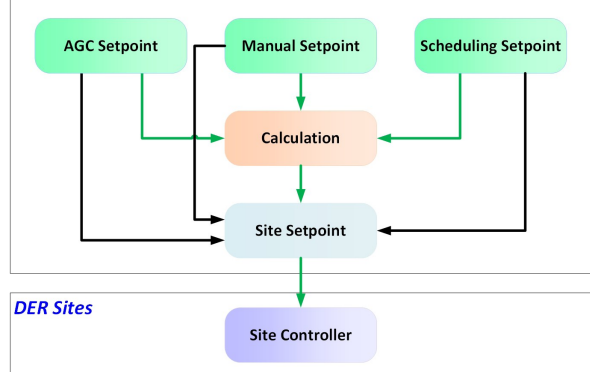
- ◆ Web interface allows for remote access, monitoring, and management of DERs, with customizable dashboards, alarms, and detailed reports.
- ◆ Supports multiple users with role-based access for secure and controlled data handling.
- ◆ Local HMI- Option: Provides on-site monitoring for real-time system supervision and control, ideal for Virtual Power Plant (VPP) models requiring local operational management alongside remote oversight.



5. Realtime Control:

- ◆ Key control functions: Active Power (P, F), Reactive Power (Q, U, PF), and Ramp Rate Control.
- ◆ Grid Compliance: Ensures adherence to global codes, enabling participation in frequency/voltage regulation, reserves, and black start.
- ◆ Automatic Generation Control (AGC): Integrates with SCADA/EMS for operator commands..
- ◆ Scheduled Control: Executes predefined setpoints for individual or grouped resources.
- ◆ Manual Control: Allows direct real-time resource management.
- ◆ Future-Ready Integration: Adaptable for Virtual Power Plant (VPP) integration and market expansion.

Control Centre



6. Advanced Functions for Expanded Integration:

- ◆ Data Analysis & Early Warning: Predicts issues and provides alerts for proactive maintenance.
- ◆ Asset Management: Monitors asset health to reduce downtime and optimize maintenance.
- ◆ Forecasting & Scheduling: Enhances energy generation and demand predictions for better planning.
- ◆ DSM & Demand Response (DR): Adjusts loads based on price signals for flexible energy use.
- ◆ Energy Billing & Settlement: Integrates with billing systems for real-time, transparent invoicing.



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