



Improve energy efficiency, optimise production, boost profitability and reduce environmental footprint with insights into energy prices, loads and renewable forecasts

HITACHI
Inspire the Next



Energy insights

e-mesh EMS Energy Management System

Energy management system (EMS) for distributed & renewable energy resources

Optimization based application to improve energy production and reduce system costs

Distributed energy resources are experiencing rapid growth; at the same time, there is a rising need for digitalisation, decarbonisation and cost reduction. Today's challenges call for an advanced energy management system to control, optimise and coordinate all assets.

Hitachi Energy's e-mesh™ EMS is specially designed to manage distributed energy and renewable resources, conventional power generation sources, and controllable loads like electric vehicle chargers. e-mesh EMS is a flexible and highly scalable application that allows for easy expansion as the number of energy resources and the size of the operation grow.

Key benefits:

- Increase system reliability and resiliency predicting and mitigating power supply interruptions
- Maximise value of each asset to provide quick return on investments
- Reduce CO₂ emitting generators reliance by optimally integrating renewable energy sources and storage systems
- Leverage price, load and renewable forecasts to optimally compute power dispatch of all energy assets
- Increase profitability optimising conventional generators fuel consumption and enabling new revenue streams related to both behind- and in-front-of the meter strategies
- Provides useful, insightful reports and summaries for business executives



Optimize performance, improve energy efficiency and minimize costs

The e-mesh EMS application leverages state-of-the-art technologies to allow full interoperability and scalability to run at the network edge. The cyber-secure application comes with four key features: Optimize, Simulate & Plan, Analyze and Integrate.



EMS Optimize

Improves energy production whilst reducing costs and emissions. With the optimisation module the assets' management is based on each unit's constraints and costs. Flexible and scalable models are implemented to rapidly expand from few to several units.

Available planning horizon include:

- Intra-day (rolling horizon over the course of 24 hours)
- Day-ahead (one shot optimisation at user's request)

Simulate & Plan

Helps in making cost-effective decisions. Several analysis become possible with the simulation tool in order to:

- evaluate custom optimisation scenarios and deploy the best solution
- schedule maintenance activities whilst reducing shutdown costs
- detect possible energy balancing issues and proactively take corrective actions

Analyze

Enhances transparency whilst providing energy insights. e-mesh EMS helps in verifying results and ensuring their sustainability by:

- measuring site performances and estimating economic, technical and environmental KPIs
- providing off-the-shelf and customisable dashboards
- collecting and harmonising forecasts data

Integrate

Enables connectivity options for integration with SCADA systems. Third-party systems such as forecast providers and trade platforms can also be easily integrated with the application, allowing meaningful data exchange. Possibility to access all functionalities and data through Web APIs.

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