



SIEMENS



Efficient microgrid management for critical infrastructures

by optimizing operational, environmental and economic aspects

siemens.com/microgrids



Renewable energies in critical environments

For operation of critical power grid infrastructures, the increasingly deregulated energy market and the advances in renewable energy sources offer both opportunities and challenges. The use of renewables to supply critical infrastructure increases the independence from grid supply and lowers operating costs, especially since surplus electricity can be sold. If storage systems are used, that allows operations to take the form of an electrical island, providing security in case of emergencies such like storms.



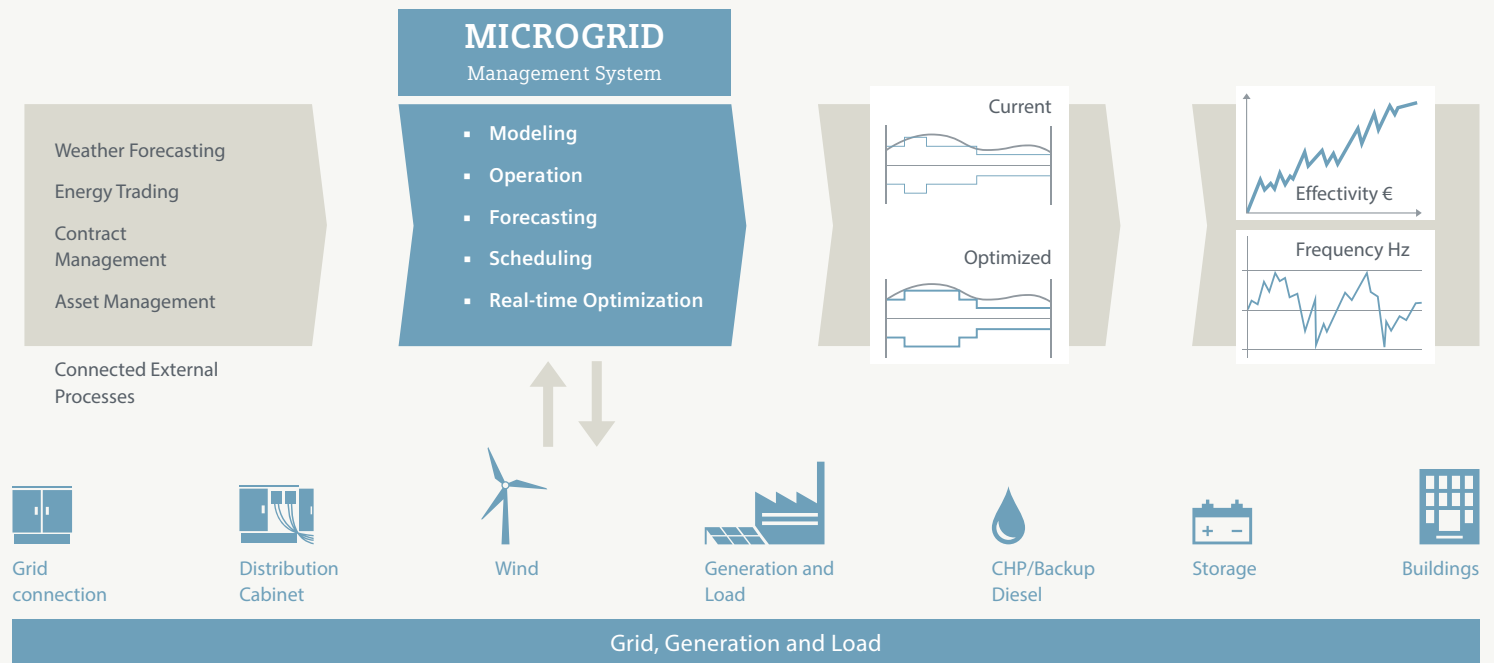
Fluctuations in electricity generation in a microgrid demand intelligent control mechanisms, reliable forecasts and – especially in island mode – a balance between available power and power consumed. To meet these needs, Siemens supplies scalable software Microgrid Management Systems and solutions based on automation devices in the SICAM series and solutions based on Spectrum Power™.



Operation, monitoring, administration, planning – all under one roof

Siemens Microgrid Management Systems monitor and control grids with large and small distributed energy generators, renewable assets, storage and loads. Our scalable system helps to automate, display, alarm and control all elements in the grid, thus assuring the needed quality of supply at all times. It generates schedules, automatically monitors their observance and readjusts them in real time. This is enabled by automatic switching sequences based on rules or forecasts that draw on a large number of constantly updated parameters – such as weather forecasts, type of plant or power price. Siemens solutions also help you efficiently incorporate such as cogeneration plants.

Intelligent networking of your energy infrastructure using Siemens Microgrid Management Systems not only increases the added value of your power supply, but also protects its operation from outages, regardless of whether you're connected to the supply network or not. Our solutions are flexible and expandable – today and in the future.



Intelligently managing microgrids

Siemens Microgrid Management Systems are the ideal solution to ensure the most optimized control of fluctuating electricity generators within a microgrid. Our tailored solutions meet the individual challenges of each power scenario with a modular structure and flexible scalability. This means that you receive a software solution exactly tailored to your needs.

Microgrid administration comprises a range of intelligent, versatile and user-friendly tools for a wide range of applications. End-to-end SCADA and numerous functions for forecasting, planning and real-time optimization support you in:

- Monitoring and controlling the grid components
- Monitoring and controlling generation
- Monitoring and controlling consumption
- Providing ancillary services
- Buying and selling power

It's flexible, direct and progressive.

Problem-free engineering

The intuitive design tools are a core element in the Microgrid Management Systems. Even the most complicated power infrastructures can be represented digitally with just a few clicks of the mouse. This saves time and minimizes the potential for error, thanks to many automatic support functions.

Benefits of a fully integrated microgrid solution

- Modular construction, flexible and scalable
- Reliable grid operation
- Intuitive modeling and parameterization
- Intelligent forecasting and planning
- Simple, real-time optimization
- Incorporation of distributed generators, storage units and loads
- No 24/7 operator required

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