SIEMENS

Integrating renewable energy sources into the grid safely, reliably and economically

with industrial microgrid solutions from Siemens

siemens.com/microgrids

As inventories shrink, production cycles grow shorter and factories have to produce on demand faster than ever, just-in-time production is playing an increasingly important role. In this industrial environment, a reliable power supply is essential for factories to ensure their own economic viability. That's why in many locations fossil-fuel-based backup generators protect against power failures as well as against fluctuations in the grid and in the plant's power consumption. However, it is more economical and more eco-efficient to integrate renewable energy sources and storage systems in a separate microgrid. This not only increases a plant's independence from the energy supply and energy prices, it also improves its carbon footprint.

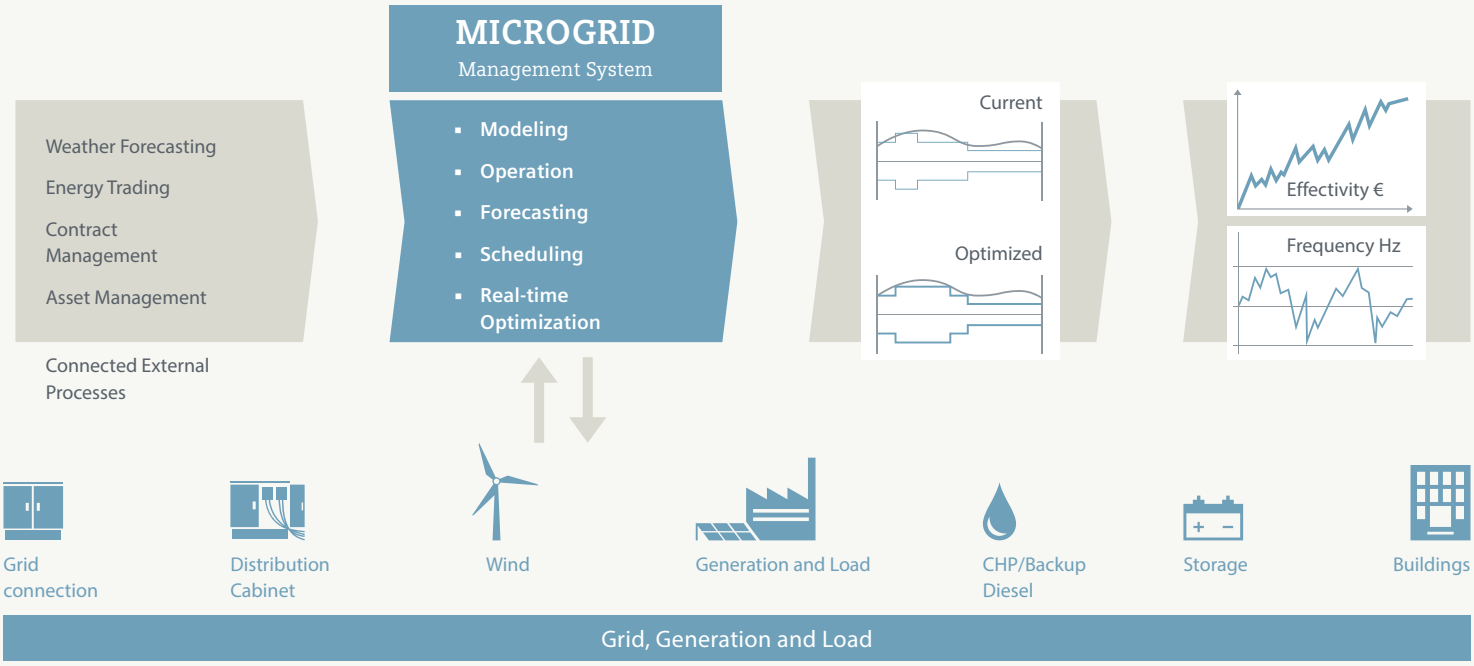
To control these kinds of microgrids, Siemens offers the scalable Microgrid Management Systems as well as solutions based on SICAM automation devices.

Operation, monitoring and management – everything under one roof

Siemens Microgrid Management Systems monitor and control grids with both large and small distributed energy generators and storage and consumer units. SCADA helps the flexibly scalable systems automate, display, alarm and control all elements in the grid, thus assuring the needed quality of supply at all times. Our solutions include numerous options, including autonomous resynchronization, energy balancing and real-time optimization.

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 Microgrid Management Systems also help you efficiently incorporate block central cogeneration stations, for example, and can already reduce your dependence on fossil fuels today.

Intelligent networking of your energy infrastructure with the help of the Microgrid Management Systems from Siemens not only increases the value added of your power supply but protects its operation from outages. It's flexible and expandable – both today and in the future.



Intelligently managing microgrids

Siemens Microgrid Management Systems are the ideal solution to ensure the best possible control over fluctuating electricity generators within a microgrid. The Siemens systems meet the individual challenges of each power scenario with a modular structure and flexible scalability. This means that you always get a software solution exactly tailored to your needs.

Central automation

The central administration and monitoring with Spectrum Power TM , the SICAM PAS substation automation system and DEMS includes:

- Expanded SCADA (Supervisory Control and Data Acquisition) enables ongoing real-time optimization
- Short-term and long-term forecasts
- Progressive planning
- Ongoing real-time optimization

Automation at the field level

You can use the SICAM RTU automation device and the SGU Smart Grid Unit to control the different types of generation.

- Controller with digital inputs and outputs as well as analog connections for control and monitoring
- Optional Synchrocheck functions including direct 3CT and 4VT connections
- Connection via direct cabling or Modbus
- Automatic onboard control algorithm
- Control on the device via Mosaic control panel

The Microgrid Management Systems from Siemens enable the monitoring and control of infrastructure, generation and consumption as well as the purchase and sale of energy. They're flexible, direct and future-oriented.

Benefits of our fully integrated microgrid solution

- Modular construction, flexible and scalable
- Proven technologies
- Reliable grid operation
- Intuitive modeling and parameterization
- Intelligent forecasting and planning
- Simple, real-time optimization
- Incorporation of distributed generators, storage units and loads

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