

## Efficient microgrid management for urban energy systems

by optimizing multiple energy vectors – electricity and heat

[siemens.com/microgrids](https://www.siemens.com/microgrids)



### The opportunities for delivery of energy

Rising energy prices as well as reliable and sustainable energy are high on the agenda for people and businesses alike. Fundamental changes to market structures offer new opportunities for urban communities to optimize delivery of energy to their inhabitants. Siemens delivers tailored solutions to meet energy goals such as energy reliability, sustainability, resilience, and economy.

Where previously the only network was electrical, increasingly there is an opportunity in the distribution of heat and cold, and the creation of a holistic, multi-vector energy system. Ownership and management of the underlying electrical network is no longer a necessity for creating a locally optimized system with energy cooperation between different organizations, people, and buildings. With multiple energy vectors, multiple sources, and storage, the options for energy delivery increase, and costs are reduced.

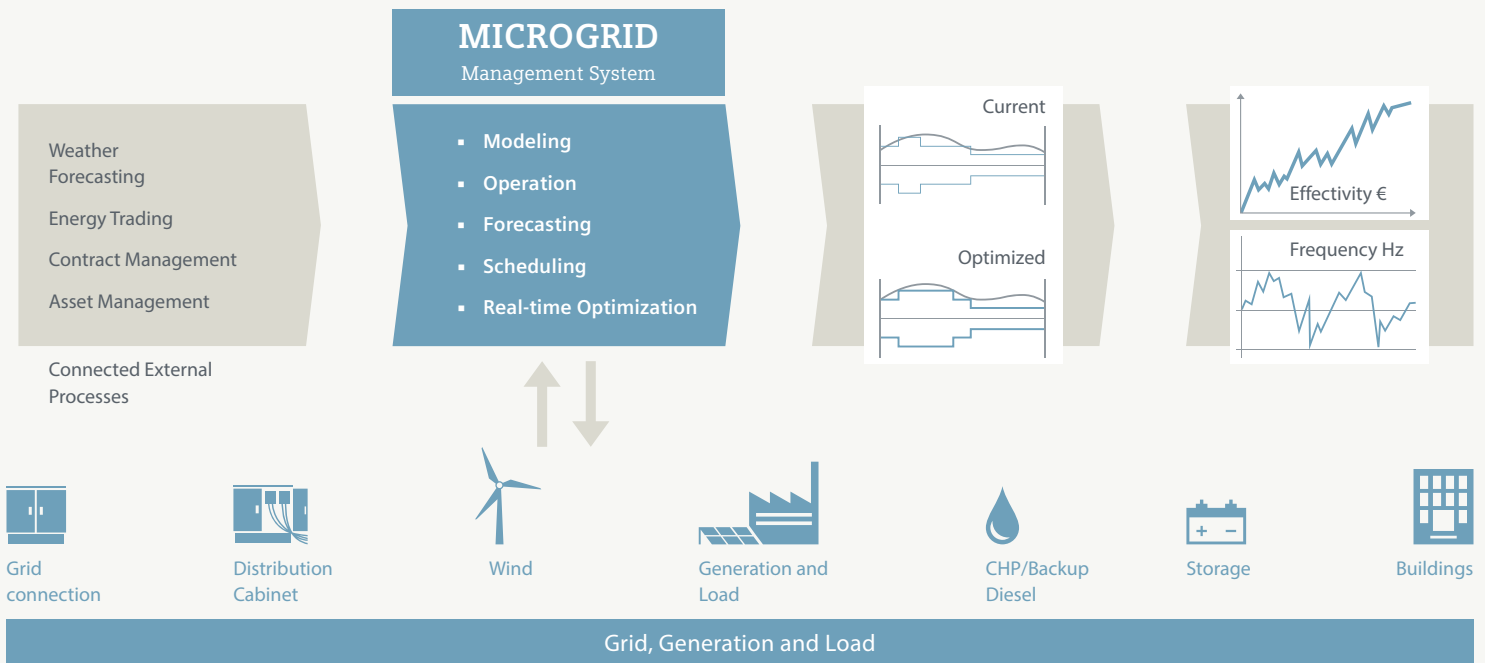
However, as multiple sources and energy assets are added to a microgrid, advanced control functionality is required to ensure efficient operation. Siemens supplies

scalable microgrid management systems and solutions based on SICAM automation equipment and software solutions based on the leading Spectrum Power™ platform.

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

Siemens Microgrid Management Systems monitor and control networks with large and small distributed energy generators, renewable assets, conversion plants, storage, and loads. Our scalable system helps to automate, display, alarm, and control all elements in the networks, 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 automated sequences based on rules or forecasts that draw on a large number of constantly updated parameters – such as weather forecasts, type of plant, or energy price.

Siemens Microgrid Management Systems increase the value of your energy plant and can protect your system from outages, whether you are connected to the local grid or running as an island. 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 generation and energy conversion within a microgrid. Our tailored solutions meet the individual challenges of each energy 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 system components
- Monitoring and controlling generation and energy conversion
- 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 system 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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Siemens AG  
Energy Management  
Freyeslebenstr. 1  
91058 Erlangen, Germany

Further information is available from our Customer Support Center.  
Phone: +49 180 524-84 37  
Fax: +49 180 524-24 71  
(Charges vary according to your provider.)  
E-mail: support.energy@siemens.com

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