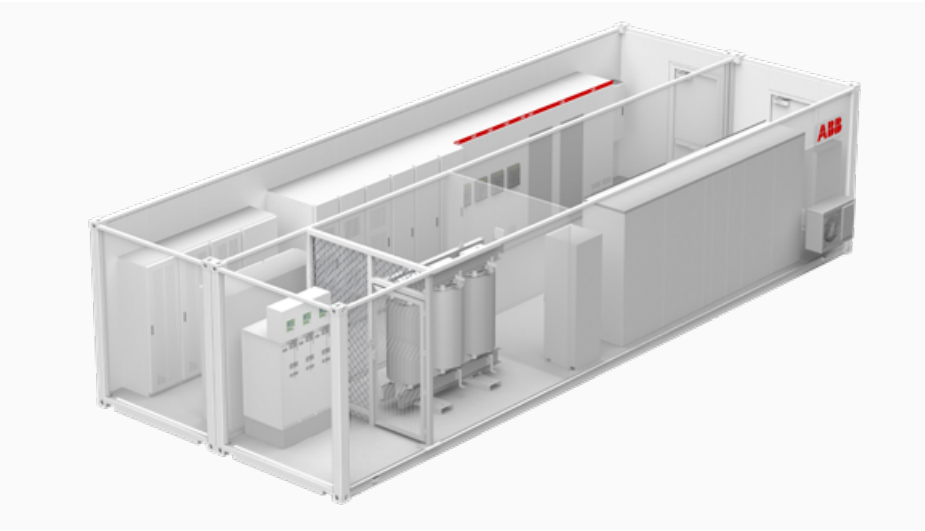
DATA CENTER

Microgrid offering
3 MW Microgrid



Modular concept improves speed to deployment and makes solutions easily scalable

High efficiency equipment supports sustainability goals and lowers carbon emissions

Prefabricated modules optimize site works and reduce commissioning time

New technologies future proof data centers and offer new opportunities

In the interconnected and power-hungry world, reliable and sustainable electricity is a must. In the data center industry, uptime and reliability is even more paramount as every outage has a price tag. And with the ever-increasing demand for data and the internet of things (IoT), the industry is accelerating towards finding new technological advancements and solutions to achieve carbon neutrality and sustainability goals.

To help clients achieve those goals, ABB is offering state-of-the-art microgrid packages for the data center industry. Microgrid packages are designed to work on- and off- the grid via a digital control that offers intelligent and optimal management of the system. Microgrid solutions offer coordination between different energy sources, including onsite energy generation. With a microgrid solution you are in the charge of your energy mix and will have the opportunity to create new revenue streams alongside your core business.

ABB´s microgrid packages offer the following benefits:
- Increased uptime and reliability
- Improved sustainability
- Lowered carbon footprint
- Optimized cost and energy usage
- New revenue streams from grid services
- Centralized control

Microgrid packages can combine different energy sources:
- Renewable energy (solar or wind)
- Onsite power generation to operate independent from the grid
- Battery energy storage using different battery technologies
- Low and medium voltage uninterruptible power supplies for critical loads

These elements are combined and selected based on the site requirements and parameters.

ABB´s microgrid controller enables monitoring and control, managing the microgrid elements in an optimal way.

Utilizing ABB´s new technologies in a microgrid architecture enables users to offer additional services to the grid. Frequency regulation, demand response, peak shaving and spinning reserve are a few examples.

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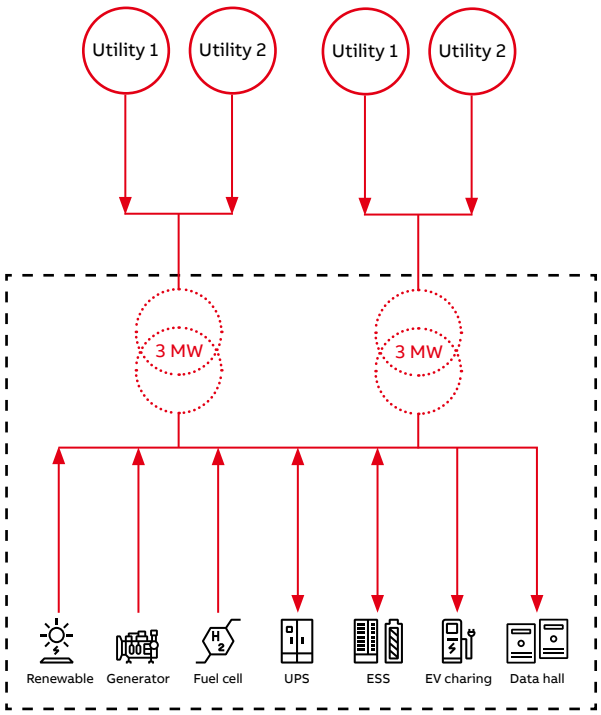
Single line



3 MW package
ABB´s microgrid package is designed for medium-voltage grid connection to allow dual feed from utility network up to 40,5 kV.Grid connection module has option to feed data center with 2 transformers for increased reliability.

The utility grid connection module is type-tested according to relevant international standards. Type tests verify compliance to international standards for public and service personnel safety.

The main electrical eHouse is designed to allow connection to different energy sources:

Renewable energy: The microgrid package enables the electrical connection of renewable energy sources and their control to optimize the onsite generation and allow additional services. When coupled with battery energy storage, the package allows load shifting to enable the reduction in utility demand charges or capacity firming to introduce renewable energy into the grid in a controlled manner.

Battery Energy Storage System (BESS): Pre-designed 3MW/3MWh solution allows the site to operate for one (1) hour on off-grid mode while keeping necessary and critical loads powered up.

Uninterruptible Power Supply (UPS): low-voltage or medium-voltage UPS allow the supply of the critical loads under grid outages. ABB´s microgrid package allows the UPS to provide grid services such as demand response, peak shaving and frequency regulation.

Fuel Cell modules: packages are designed to be expanded in a modular manner to increase power rating up to the full power back-up. The Fuel Cell energy source is based on hydrogen, which can be obtained by reforming and purifying methanol, cracking ammonia or directly from on-site hydrogen supply.

Generator: Generator connection is available stand-alone or coupled with other energy sources such as renewables, battery energy storage or fuel cells. ABB´s microgrid package allows users to optimize genset usage to prevent partial load, to increase efficiency, and to reduce fuel consumption and carbon footprint.

Electric vehicle (EV) charging: The 3 MW package allows customers to provide electric vehicle charging features to their grid module through customized electrical architecture. This step can support the achievement of sustainability goals of the facility through the reduced emission of greenhouse gases (GHG).

Microgrid controller: ABB´s scalable microgrid controller offers flexible packages to match any architecture. On-premise microgrid system operation and management allows monitoring and control of the assets, energy management with grid interconnection and services, all with a dedicated local user interface for supervision. Optionally, cloud connectivity is available for multi-site management or remote operation and monitoring. All offerings fulfil the highest standards for cybersecurity.

ABB´s microgrid packages for data center offer an electrical architecture which allows the site to operate as consumer or prosumer. Bidirectional energy flow allows data center operators to work in grid support mode and increase their revenue. The ABB Digital layer ensures proper control and operation mode.

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