

AKA Smart Microgrid

Next Generation Energy Systems

Power when you need it.

Aspin Kemp & Associates' (AKA) Smart Microgrid is a distributed energy solution that can be easily added to enhance an existing installation or provided as a key element to a new installation.

AKA's Smart Microgrid provides back up power generation, grid support and energy storage options to suite an installation's needs.

The Smart Microgrid has both long term energy storage and short term energy storage options that provide an optimized solution specific to the application. Energy storage provides a response to changes in loads and generated power including bridging, peak shaving, shifting and smoothing functions.

The Smart Microgrid system can provide return on investment opportunities to the owner through reduced energy costs, reduced power generation and maintenance costs as well as other revenue benefits. Its seamless ride through of grid or local power generation faults delivers consistent, reliable clean power with built-in power conditioning; assuring the installation's process can run without interruption, independent of grid conditions. Through utilization of power generation to the

grid an alternate revenue stream or cost reduction for the asset owner is facilitated.

AKA's Smart Microgrid provides economic benefits while improving the reliability and performance of an installation's processes as well as providing a seamless portal for integration of renewable energy options.

- **Safe:**

The design is aimed at continual safe operation for the equipment, the maintainer, the connected power sources and the grid.

- **Scalable:**

Multiple Smart Microgrid systems can function as a single system on a distributed grid or on a single microgrid using a proprietary technique for sensing the health of the adjacent systems. Single systems are scalable from kW to MW building block elements.

- **Adaptable:**

Multiple energy storage options and able to accommodate a variety of renewable energy sources.



FEATURES

Improved Return on Investment

- Reduced CAPEX for renewable energy sources; through multi-function equipment utilization,
- Peak shaving of local loads to reduce costs during periods when energy rates are high or to reduce demand metering costs; and
- An alternate revenue stream through utilization of distributed power generation, on call peak shaving, kVAR production to the grid.

Enhanced Performance

- Lithium polymer battery for compact design and long life span;
- Ultra-capacitors for quick response to frequent load changes;
- A parallel, non-spinning reserve back-up power source with bumpless transition to island mode of operation utilizing AKA's solid state generator application;
- Autonomous peak shaving in response to loss of generation capacity or a rapid and unpredicted rise or fall in kW or kVAR loads;
- Bridging of peak loading while alternative power sources are started; and
- Compensation for variability issues associated with renewable energy sources.

Increased Reliability

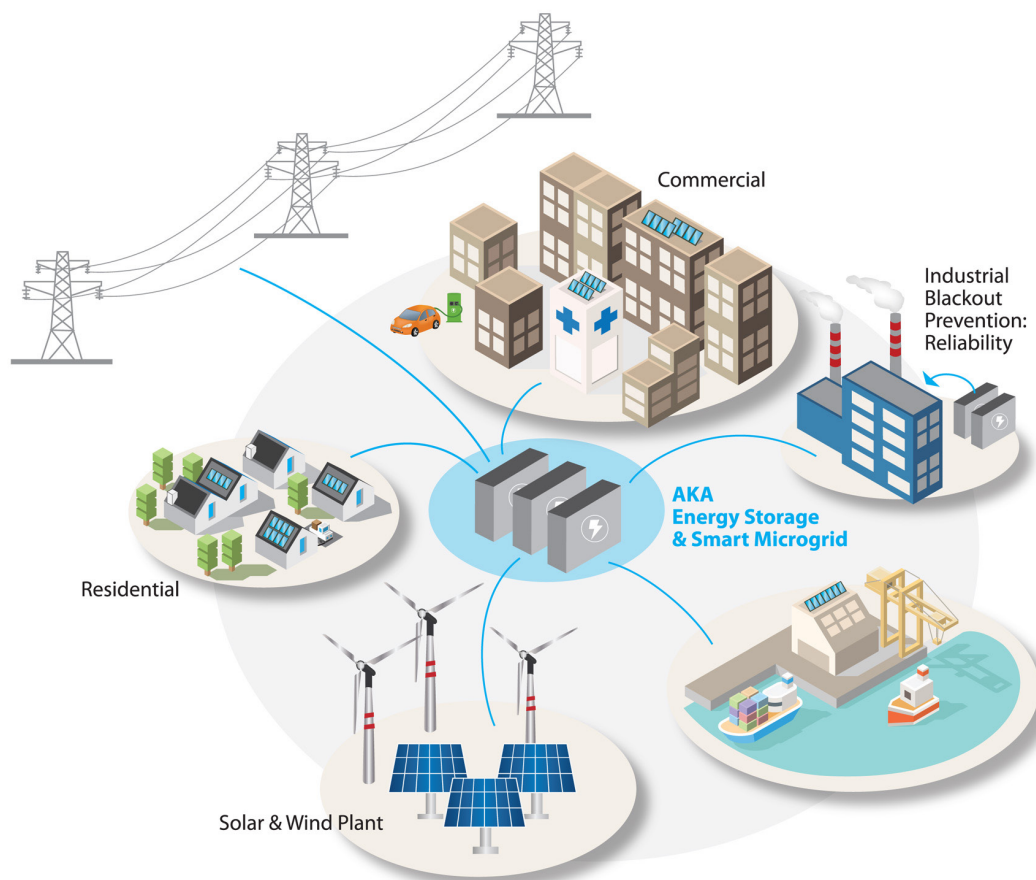
- Temporarily bridging local peak demands that are in excess of the grid connection capacity;
- Facilitating utility access to energy storage to ride through peaks that exceed the rotating reserve of the connected generating capacity – can act as part of a distributed peaker plant;
- Seamless ride through of the local network in the event of a total loss of the grid or of local generating resource, preventing risk and losses due to interruption in process; and
- Unique solution based on years of development in the most demanding marine and oil & gas critical power systems.



ENGINEERING INNOVATIVE SOLUTIONS

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AKA MICROGRID



Energy Management

AKA Smart Microgrid improves transmission grid performance and assists in the integration of variable energy resource generation. AKA Smart Microgrid can provide dynamic energy management taking into account a wide range of variables including:

- cost of local power generation;
- cost of utility power;
- price to sell power;
- day of week and holiday operational profiles;
- environmental (weather, tides, etc.,); and
- variable energy storage reserve requirements.

Renewable Energy and Base Load Production

An AKA Smart Microgrid regulates the power supply and smooths the quantity of electricity sold back to the grid from PV or other variable renewable resources. It can also provide balancing and energy management service for integrated multiple distributed resources as well as slow to respond base load power generation.

Residential

An AKA Smart Microgrid provides behind-the-meter residential home power bridging, backup power, power quality improvements and extends usefulness and return on self-generation and net metering models.

Commercial and Industrial

An AKA Smart Microgrid provides behind-the-meter demand charge reduction for commercial and industrial energy users.

Island Grid

A remote AKA containerized Smart Microgrid integrates multiple renewable, asynchronous, intermittent and distributed resources. It supports physically isolated electricity system by sustaining stability and reliability and can also provide balancing services. The system is available in a containerized format, streamlining delivery to remote locations, easy integration into existing facilities as well facilitating a simple lease/ low capex solution.



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