ZBB Energy

Grid Interactive Platform

When ZBB's EnerSystem™ power and energy control system is connected to a stable grid, it can be used as a bi-directional, hybrid conversion platform, integrating multiple renewable and/or conventional power sources with energy storage. It provides for steady state output, emergency power supply and/or arbitrage pricing schemes to and from the utility supply.

Take Control of Your Power

The utility companies don't have to be in charge of the cost and quality of your energy supply. You can take control of your power needs and have energy – even green energy, on your own terms:

- Manage the output of your resources and dictate the quality of your own energy supply
- Be free from total dependence on the grid
- You can have reliable, constant power, even if wind or solar are your main energy source
- Sell your excess generated supply and even stored energy back to the grid when its optimal for you to do so – not just for the utility company

ZBB's EnerSystem supports any combination of generating sources, including the grid as a two-way input

You need a platform configuration that supports your electrical demands while optimizing all of the interconnected resources available to you – beyond your singular connection to the grid.

The Answer is ZBB

ZBB's EnerSystem can be configured to create a hybrid power conversion system for grid-interactive applications anywhere in the world. When combined with ZBB's EnerStore™ Zinc-bromide flow batteries or other energy storage devices, the platform creates an expandable system that independently optimizes the supply of each generating source. This provides a grid-synching architecture that directs power flows to and from the grid based on demand response, load management and shifts supply by time of day for peaking needs. It can even be used as an emergency power system independently of the grid during outages.

ZBB's EnerSystem integrated energy management platform:

- Provides a continuous supply of energy and optimizes all of the interconnected resources
- Eliminates the variable output of renewable energy sources
- Easily integrates one or multiple energy generation sources now and in the future
- Provides storage devices for both inexpensive and premium application needs
- Uses off-grid inverters or inverter sets that form their own highly reliable micro-grid

ZBB's EnerSystem is an integrated, factory built and tested energy management system that operates 24-hours a day, 365 days of the year, regardless of available power.

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Be in Control

Based on performance, cost, or availability of resources – you can manage your power needs with:

- Direct grid connection with bi-directional power flows
- Independent control over active/reactive power dispatch to improve power quality
- Integrated renewable, advanced and conventional generation sources
- Hybrid configurations of energy storage (flow batteries and other devices) in parallel operation
- Smart-Grid 'demand response/dispatch' assets as an additional revenue source where available
- Renewable generation ramp control/voltage smoothing/frequency regulation
- Power quality management with included power electronics in place of other external devices

Optimize Your Resources

Power quality and reliability is critical, and with ZBB's EnerSystem you don't have to be subject to the grid's continually increasing costs and intermittent supply, or be constrained to meet the rising demands of your facilities.

ZBB's EnerSection™ is scalable, modular, flexible and configurable. It will support you with an energy storage system that allows many diverse energy sources to run at their discrete optimized levels – maximizing total power availability. ZBB's interactive energy format features:

- An open and simplistic design
- A complete installed solution cost
- The ability to manage complex electrical site requirements
- Accommodates multiple AC and DC load and generation types
- Easy installation, configuration and training
- Fewer parts (SKUs) for more efficient inventories
- Low maintenance requirements, higher availability and improved efficiency
- Superior electrical energy performance and reliability
- Low, ongoing costs

Capture Multiple Value Streams

ZBB's EnerSystem manages the onsite supply and demand in a bi-directional flow to and from the grid which allows you to capture multiple value streams, using energy storage as a "shock absorber" between the changes in outputs, demands and cost of supply. It also creates a reserve supply of energy to use during peak times and in emergency outages so you can:

- Reduce demand charge and peak pricing costs of power supply from the grid
- Sell power at peak prices or be paid to use storage on demand from the grid
- Integrate multiple onsite power sources with dedicated loads
- Smarter use of all onsite assets into an emergency power system

Whatever Your Energy Source or Connection

ZBB optimizes energy availability with its integrated management platform and intelligent storage – so you can take control of your power and energy needs on your own terms.

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