



If your energy supply is inconsistent, ZBB's EnerSystem™ energy management platform allows you to use the grid's electrical supply as a one way input to provide continuous power flows from connected resources – improving overall power availability. This platform isolates the load from various grid disturbances, variability of renewable sources and minimizes the need to switch-to or start-up diesel gen sets.

## A Buffer to Higher Reliability

Are you connected to the grid and facing these challenges?

- Inconsistent or idiosyncratic energy supply
- Time and material loss or equipment damage due to outages
- The cost of switching to and starting up diesel or other expensively fueled gen sets
- The utility company dictating pricing and supply



*ZBB's EnerSystem forms an energy management architecture that is a buffer to keep the flow of power constant*

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

## The Answer is ZBB

ZBB's EnerSystem can be configured to create a hybrid power conversion system for 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 while providing a grid-forming, load following steady-state power output to the electrical loads.

ZBB's EnerSystem integrated energy management platform:

- Provides a continuous supply of energy and optimizes all of the interconnected resources
- Integrates multiple types of energy generation, including the grid as an input – when you want it
- Provides storage devices for both inexpensive and premium application needs
- Uses grid-independent 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. Renewables, energy storage and conventional fuel generation sets are all optimized to form a dependable “always on” micro-grid that is independently operated from your utility supply.

## A Hybrid Resource

ZBB's EnerSection™ features a 'double conversion' of all inputs and storage to a common, always-energized DC bus that absorbs grid-supply when power is available, but does not interrupt loads when the grid supply drops out. Renewables, energy storage and conventional fuel sets are optimized to make up the difference without the grid supply.

- Constant voltage/frequency control as the load dictates with independent active/reactive power dispatch
- Integrated renewables, advanced energy storage, grid and conventional generating resources
- Hybrid configurations of energy storage (flow batteries and other devices) in parallel operation
- Stable voltage levels, phase conversion capabilities and enhanced power quality

# ZBB Energy Grid Conversion Platform

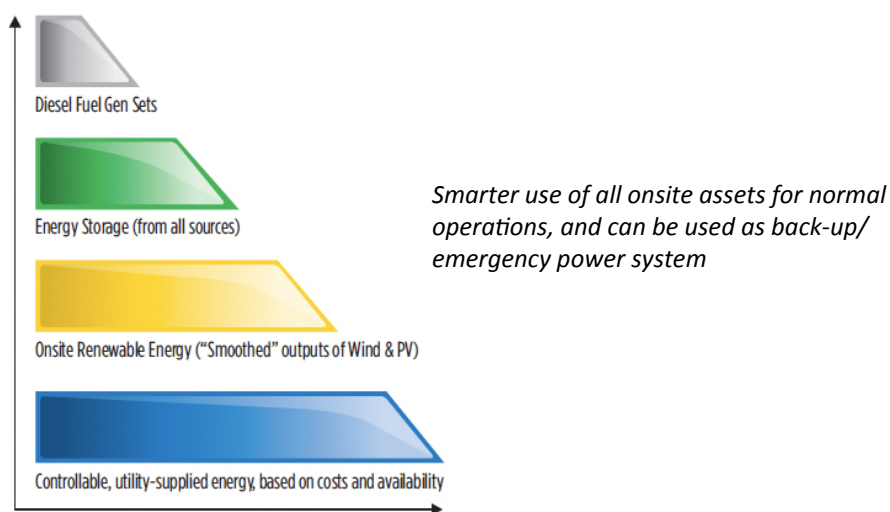
## Optimize Your Resources

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 grid conversion platform will support you with an energy storage system that allows many diverse energy sources to run at their discreet optimized levels – maximizing total power availability. ZBB's interactive energy platform 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

Increasing costs (typically) per kW/hour of usage



ZBB's EnerSection optimizes the usage based on cost minimization with continuous supply to loads and superior power quality

## Whatever Your Energy Source or Connection

ZBB optimizes energy availability with its integrated management platform and intelligent storage – so you can keep the flow of power to your specific loads constant – even if outputs from the power supplies are not.