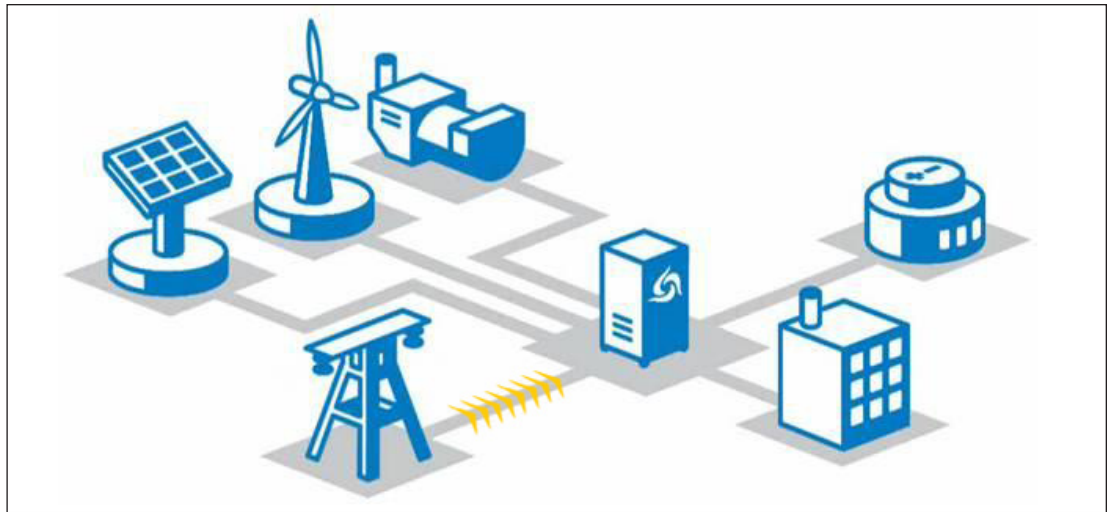


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▲ The ZESS POWR™ PECC (Power & Energy Control Center) in a Grid Conversion platform is a grid-tied ZBB proprietary hybrid power conversion system. The unit supports integration of any combination of generating sources, including having the grid as one-way input. When supplied with ZBB ZESS energy storage units (ZESS 50, ZESS 500) or other bulk energy storage devices, the platform creates an expandable power plant system that independently optimizes supply of each generating source while providing an 'always on' intelligent energy management architecture. This provides for continuous operation with a superior level of power quality to dedicated site loads with energy storage. The interconnected system bus acts as a 'shock absorber' between intermittent power supply from the grid and renewables, while minimizing the run time of gen sets.

Grid Conversion

A Buffer to Higher Reliability

If you are trying to run a 21st-Century operation with a 20th-Century electrical system, you are leaving yourself vulnerable to:

- » 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 pricing and supply dictates of your utility company

What you need is a platform configuration that supports your electrical demands while optimizing all of the interconnected resources available to you, including the grid. This kind of

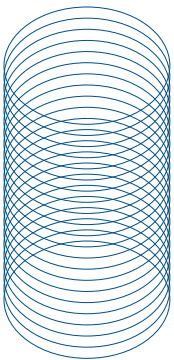
architecture is a buffer that keeps the flow of power to your specific loads constant, even as outputs from the individual power supplies are not.

The Answer is ZBB

ZBB is an energy integration solutions company. We provide platforms for:

- » Continuous energy supply, from the most optimal supply available
- » The integration of multiple types of energy generation, with the grid as an input when you want it
- » Storage devices for both inexpensive and premium application needs
- » Grid-Independent inverters or inverter sets that form their own highly reliable micro-grid





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ZBB's ZESS POWR™ PECC is an integrated, factory-built and tested 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's independently operated from your utility supply.

A hybrid resource

ZBB's ZESS POWR™ 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 grid supply drops out. Renewables, energy storage and conventional fuel gen sets are optimized to make up the difference without the grid supply. You will have:

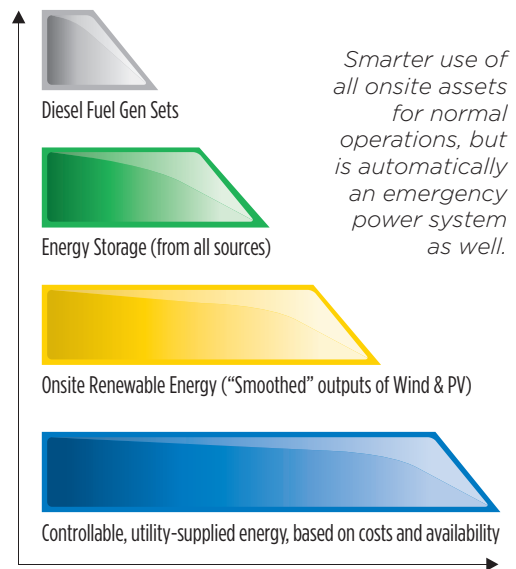
- » Constant Voltage/Frequency Control as the Load Dictates with independent Active/Reactive Power dispatch
- » Integrated renewable, advanced, grid and conventional generation sources
- » Hybrid configurations of energy storage (flow batteries and other devices) in parallel operation
- » Stable voltage levels, phase conversion capabilities and enhanced power quality

Optimize your resources

Power quality and reliability is critical, but with ZBB ZESS POWR™ you don't have to be subject to the grid's continually increasing costs and intermittent supply nor be constrained to meet the rising demands of your facilities.

ZBB's grid conversion format will support you with an energy storage system that allows many diverse energy sources to run at their discrete optimized levels, thus maximizing total power availability with:

Increasing costs (typically) per kW/Hour of usage



POWR PECC optimization of usage based on cost minimization with continuous supply to loads and superior power quality

- ▲ An integrated, intelligent energy platform that provides for continuous power flows from all attached sources, including an input-only flow from the grid that improves overall power availability, while substantially lowering fuel cost.
- » Open and simplistic design
- » Total installed solution cost
- » Ability to manage complex electrical site requirements
- » Multiple AC and DC load and generation types
- » Ease of installation, configuration and training
- » Fewer parts (SKUs), more efficient inventories
- » Lower maintenance requirements, higher uptime and improved efficiency
- » Superior electrical energy performance
- » Ongoing cost reductions

Life is uncertain. You need a solution that balances out those uncertainties.

With ZBB ZESS POWR™, this is energy on your terms!

Empowered Renewables. Lower Costs. Continuous Reliability

