LS Energy Solutions

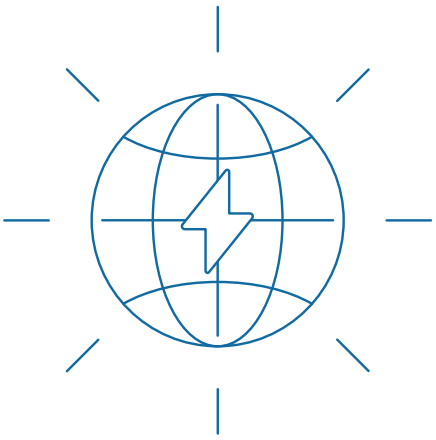
PIONEERING THE FUTURE OF ENERGY STORAGE

All-in-One-BRiC

INTEGRATED ENERGY STORAGE SOLUTION

Integrated energy storage solution

The LS Energy Solutions' "All-in-One-BRiC" solution is a compact, stand-alone energy storage solution housed in one easy-to site enclosure. The All-in-One-BRiC solution comes in 1-, 2- or 4-hour duration options, suitable for both large C&I applications as well as front of the meter applications. The solution consists of a custom 40' container and includes batteries, inverters, HVAC, fire protection, DC and AC protection devices and can include a medium voltage transformer, external to the container. The All-in-One-BRiC is ready to communicate with your control system or EMS. If preferred, LS Energy Solutions can also provide a 3rd party EMS.



With the All-in-One-BRiC design, there is a single AC and comms connection to each container which reduces the on-site EPC schedule and associated costs. In addition, since a majority of the project scope is performed in a factory environment, quality control is enhanced.

The All-in-One-BRiC solution is built around the PowerBRiC string inverter, which is the third generation of bidirectional energy storage string inverters by LS Energy Solutions. The string inverter architecture comes with a number of advantages; rightsizing power requirements, high system availability and more options for energy and power augmentation.

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Right-sizing power requirements

The PowerBRiC architecture enables “right sizing” of inverter systems by paralleling multiple, independent 140kVA string inverters. We call this a central string design and configurations up to 3MW are possible. The power requirements of a customer’s specific application can be easily matched by configuring only the needed 140kVA BRiCs in standard 19” racks with front-mounted touch-safe parallel connections. Customers have the benefit of not paying for excess inverter capacity. And, if desired, open rack locations can be created to allow for future BRiC additions as part of a battery augmentation strategy.

High system availability

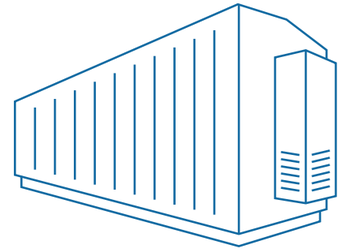
Building on a proven concept from the solar PV industry, creating smaller independent strings of batteries and inverters on separate DC busses inherently leads to higher overall system availability. If one BRiC were to go out of service, the remaining BRiCs on that DC bus would remain in service. There is a big difference between losing 140kVA of system output compared to the loss of a 3MW central inverter.

Applications

The All-in-One-BRiC is suitable for both behind the meter and front of the meter applications:

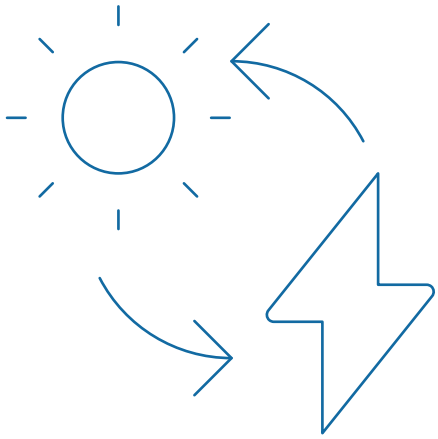
+ Microgrid and Back up power
+ Black Start
+ Ability to transfer from Grid Following to Forming and back
+ Frequency regulation and ancillary services
+ Peak shaving
+ Solar + storage

...and more



Energy and power augmentation

Because BRiC-based systems can be configured into multiple DC busses, that also means that a battery string on one DC bus can operate with a different DC voltage range from a battery string on a neighboring DC bus connected within the same central string PCS. Thus the different DC voltage ranges typically encountered with batteries of different generations and use can be combined behind the same central string BRiC system. Batteries must be grouped by like-vintage on the same string. In addition, if room is left in the initial design for more BRiCs to be added (and open racks in the battery container for more battery modules), the power and energy augmentation options for a project increase significantly. This provides the potential for a longer project life, ease of mixing battery vintages and chemistries, and greater project revenues.



CONFIGURATION	1HR DURATION	2HR DURATION	4HR DURATION
Output Data: (Grid Interface)			
Rated AC output - maximum (flexible min)	2.5MVA	1.8MVA	1.25MVA
AC Voltage	600VAC		
Grid Frequency	50 / 60 Hz (±5%)		
User Interface:			
Communication	Modbus TCP CAT 5		
Mechanical:			
Ingress protection	NEMA 3R or optional NEMA 4 for harsh or coastal applications		
Ambient temp. range, operating	-20°C to 50°C (ocold weather package option for below -20°C		
Dimensions	40' (L) x 10' (W) x 9.5' (H)		
Standards compliance:			
Inverter	IEEE 1547, UL1741-SA including CA Rule 21 and HECO Rule 14H, CSA (CE, AS4777.2, VDE-AR-N-4110-2018)*		
System	UL9540, NFPA855, VDE-AR-N-4110-2018*		
Included:			
	Inverters, Batteries, HVAC, Fire Protection, AC and DC protection, HMI		
Available Options:			
	NEMA 4, Cold weather package, Revenue Grade Meter, External UPS, Enhanced seismic withstand, Enhanced data historian		