



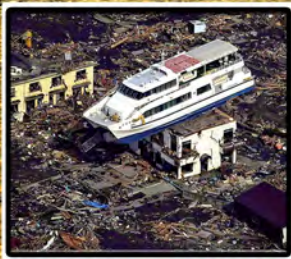
HES RESCU

HYBRID ENERGY SYSTEM

RUGGEDIZED PORTABLE STORAGE FOR MICROGRIDS

POWER FOR THE MOST DEMANDING APPLICATIONS

- + EMERGENCY UPS
- + PEAK DEMAND CHARGE REDUCTION
- + GRID TIED OR OPTIONAL OFF GRID
- + STACKED VALUE WITH VOLT/VAR SUPPORT



HES RESCU
 HYBRID ENERGY SYSTEM RUGGED ENERGY STORAGE CONTAINMENT UNIT



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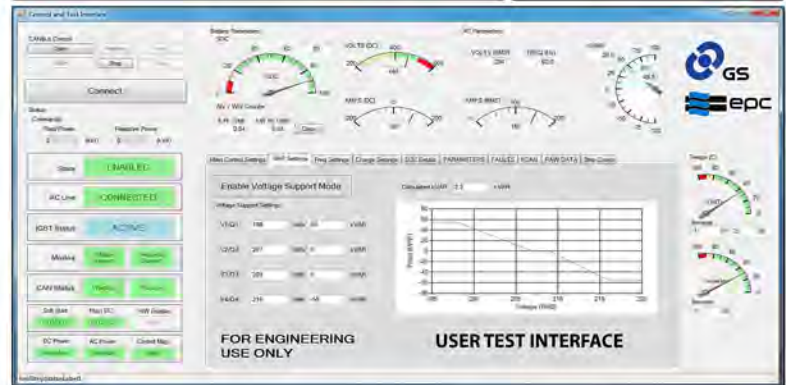
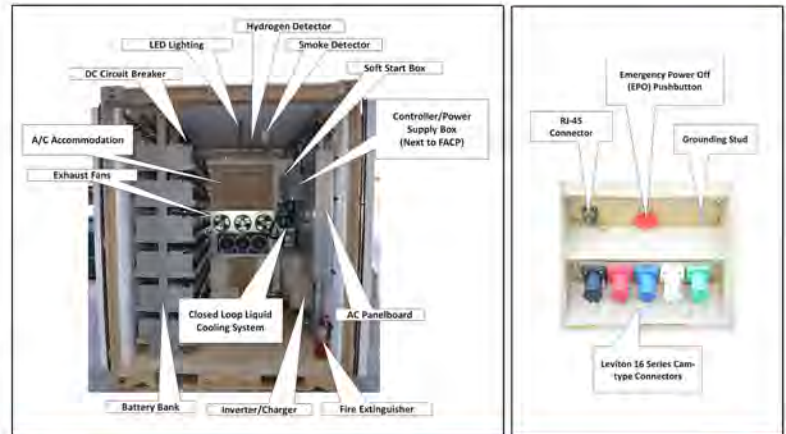
HES RESCU BACKGROUND

- The HES RESCU was designed in response to a Sandia National Labs RFI. The purpose of development was to demonstrate the expected benefits of integrating energy storage into a microgrid. These benefits include reduction in generator fuel consumption, reduced maintenance cost, and improvement of the power quality and stability of the microgrid.
- GS Battery and EPC Power Corp. collaborated with Sandia National Laboratories during the design process to make sure all desired functional and safety features were integrated into the final product which was successfully tested by Sandia in 2013.
- Although initially designed for military base camp use, key features allow for the HES RESCU to also be used in demanding commercial and industrial environments.



FEATURES

- 60kW/106kWh Compact Energy Storage System
- Closed loop liquid cooling inverter system for maintenance free operation
- Temperature controlled exhaust system with filtered intakes
- Unit is A/C ready with pull down hatch in the rear
- PV/Wind ready with installation of optional AC coupled PV/Wind inverters
- Safety features include smoke and hydrogen detection with notification (via horn/strobe and dry contacts to alert external FACP or shut down inverter)
- SCADA ready using DNP3 over IP
- 30 CKT AC panel board for load distribution
- EPO push button that when activated disconnects system AC and DC breakers
- Fully grounded and bonded with stud for ground rod connection point
- Leviton 16 series Cam-Type connectors for quick grid connection



BENEFITS

- Reduce diesel fuel consumption and improve power quality in generator based microgrids
- Demand Charge Reduction in commercial or industrial buildings
- Renewables Energy Time-Shift (when AC coupled with PV/Wind Inverters)
- Volt/VAR support
- Frequency support
- Time-of-Use Energy Cost Management
- Electric Service Reliability (UPS) - in future model
- Electric Service Power Quality
- Active Power-Factor Correction
- Renewables Energy Time-Shift (when AC coupled with PV/Wind inverters)

SPECIFICATIONS

<p>DC: 106.3kWh VRLA storage (@20hr)</p> <ul style="list-style-type: none"> Valve-regulated lead base storage batteries 432Vdc nominal bus voltage (36 batteries, series connected) 12V 246Ah Estimated Runtimes @100% DOD: <ul style="list-style-type: none"> @30kW AC output: 2.5 HRS @60kW AC output: 1.1 HRS 	<p>AC: 60kW liquid cooled power converter</p> <ul style="list-style-type: none"> High power density IGBT based voltage source converter Capable of higher power levels <ul style="list-style-type: none"> 105kW/250kW (208Vac/480Vac) continuous duty limited by system constraints in present installation Compliant to IEEE 519 harmonic limits Fully rated to 100% reactive power
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