

AKA's Energy Storage System (ESS)

Power Beyond Limits



Size of Cabinets:
56 x 8.8 KW

AKA Energy Systems' Energy Storage System (ESS) provides supplemental power and redundancy. It increases system efficiencies through improved energy management, minimizing diesel generator and grid supply dependencies. The drop-in-place design enables a simplified and efficient integration into existing power plants. It is built upon AKA's advanced active front-end (AFE) power conversion design and integrated with customizable energy storage technologies to suit specific applications.

Enhanced Operational Efficiency and Reliability

Incorporating a diverse range of features, AKA's Energy Storage System (ESS) aims to improve operational efficiency and reliability. The system focuses on optimizing energy management and reducing dependencies on diesel generators and grid supply to enhance overall system efficiencies. Environmental controls and cooling mechanisms integrated into the energy storage housing aim to ensure optimal functionality. The plug-and-play operation, facilitated by autonomous container units, simplifies processes, contributing to the system's reliability, and showcasing AKA's commitment to delivering a comprehensive energy storage solution.

Tailored Integration and Customizability

The AKA Energy Storage System seamlessly integrates into existing power plants with its drop-in-place design, aiming for an efficient transition to enhance operations in various power generation environments. Leveraging AKA's advanced Active Front-End (AFE) power conversion design, the system aims for superior performance across diverse applications, showcasing adaptability and reliability. Furthermore, the seamless integration of monitoring and controls within the control station interface enables convenient system management.

The AKA ESS is also positioned as a customized response to specific application needs, intricately designed with customizable energy storage technologies. This approach ensures that the energy storage solution aligns with and aims to optimize the functionality of diverse power systems.

Reduced Operational Costs

AKA's Energy Storage System (ESS) will enhance overall system efficiencies, and thus lower operational costs. ESS's capability to regulate power and engage in demand response programs provides prolonged and effective cost reduction. The seamless integration into existing power plants and plug-and-play operation of autonomous container units further minimize installation and maintenance costs.



Other Features

Energy Time Shift: Capable of charging during off peak hours and then injecting or displacing load during peak load hours.

Provides System Frequency Regulation and Load Balancing: With the increase in variable generation (VG) and larger forecast uncertainty, the requirement to control power system frequency and maintain the balance between load and generation increases.

Capable of Activation and Delivery within a Short Period: AKA's ESS can provide the additional resources and be activated and begin energy delivery promptly.

Load Following and Ramping: AKA's ESS can help offset peak ramp periods with a primarily carbon free alternative.

Additional Operating Reserve Capabilities: AKA's ESS can offer additional operating reserves to help manage variable generation and demand forecast anomalies.

Transmission Connected Voltage Control: When properly located, AKA's ESS can help maintain acceptable voltage levels in transmission zones.

Congestion Relief: AKA's ESS alleviates transmission constraints by time-shifting energy and helps to defer marginal transmission upgrade needs in load centres.

AKA Energy Storage Systems Delivered

Total Energy Storage System Power Converters: **Over 95,380 kW**

Total Energy Storage by AKA: **Over 29,039 kWh**



PRODUCT	YEAR	ENERGY STORAGE TECHNOLOGY	POWER PLANT CAPACITY	kW	kWh
Advanced Generator Protection System (AGP)	2006	Lead Acid	6 x 4,550 kVA	6 x 400	6 x 100
Advanced Generator Protection System (AGP)	2008	Lead Acid	6 x 4,550 kVA	6 x 400	6 x 100
Hybrid Propulsion 27+200018	2008/09	Lead Acid Retrofit in 2012 to Lithium Ion	2 x 1,342 kW	500	208
Hybrid Propulsion	2010	Lead Acid	3 x 1,765 kW	500	78
Hybrid Propulsion	2011	Lithium Ion	2 x 1,894 kW	500	65
Waste Water Treatment Plant Microgrid	2013	Lead Acid	30 kW	30	50
Hybrid Propulsion	2014	Lithium Ion	3 x 1,765 kW	500	78
Hybrid Propulsion	2014	Lithium Ion	3 x 1,765 kW	500	78
Diesel Electric	2014	Lithium Ion	2 x 400 kW	500	130
AGP & Hybrid Drillfloor (Crane Application)	2015	Ultra-Capacitors	6 x 6,750 kW	13,600	33
AGP & Hybrid Drillfloor (Crane Application)	2016	Ultra-Capacitors	6 x 6,750 kW	13,600	33
AGP & Hybrid Drillfloor (Crane Application)	2017	Ultra-Capacitors	6 x 6,750 kW	13,600	33
Waste Water Treatment Plant Microgrid	2017	Lead Acid	30 kW	30	50
AGP & Hybrid Drillfloor (Crane Application)	2017	Ultra-Capacitors	6 x 9,000 kVA	500	27
AGP & Hybrid Drillfloor (Crane Application)	2017	Ultra-Capacitors	6 x 6,750 kW	800	33
UPS Systems	2000 - 2017	Lead Acid Typically	Various	2,000*	1,000*
AGP & Hybrid Drillfloor (Crane Application)	2018	Ultra-Capacitors	6 x 6,750 kW	800	33
Commercial/Industrial Microgrid	2019	Ultra-Capacitors & Lithium Ion	1 x 313 kVA	200	65
AGP & Hybrid Drillfloor (Crane Application)	2019	Ultra-Capacitors	6 x 9,000 kVA	800	27
Industrial Microgrid	2019	Lithium Ion	8 x 6,235 kVA	16,000	2,000
Industrial Microgrid	In Progress	Lithium Ion	2 x 3.14 MVA	6,280	4,484
Land Based Microgrid System	2023/2024	Lithium Ion	4 x 3000 kVA	2 x 4065	2 x 8129

* Estimated total based on average size of unit

2024_V1.0



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