

# Containerized Energy Storage System

Complete battery storage systems for retrofit and newbuilt vessels



ABB offers a turnkey hybrid power solution which improves power plant safety and availability. The solution reduces fuel consumption and pollutant emissions, improves crew comfort, and reduces noise and engine maintenance.

— 01 The Containerized Energy Storage System is built for easy maintenance for increased safety

## What is containerized ESS?

ABB's containerized energy storage system is a complete, self-contained battery solution for large-scale marine energy storage. The batteries and all control, interface, and auxiliary equipment are delivered in a single shipping container for simple installation on board any vessel. The standard delivery includes batteries, power converters and transformer for connection to the ship's power system, energy storage control system, cooling and ventilation, fire detection and CCTV. The solution is ideal for both retrofit and newbuilt applications.

## How does containerized ESS work?

The energy storage system stores energy when demand is low, and delivers it back when demand increases, enhancing the performance of the vessel's power plant. The flow of energy is controlled by ABB's dynamic energy storage control system. It enables several new modes of power plant operation which improve responsiveness, reliability, safety, and fuel consumption.

## What are the benefits?

The energy storage system supports the following functionalities:

**Peak shaving:** Level power seen by engines and offset need to start new engines. Benefits include reduced fuel consumption and engine maintenance.

**Enhanced dynamic performance:** Instant power in support of running engines. Benefits include reduced fuel consumption and enabler for "slower" sources like LNG and fuel cells.

**Spinning reserve:** Backup power to running generators. Benefits include improved safety, reduced fuel consumption and engine maintenance.

## System integration

Drawing on our decades-long experience as an industry leader in marine power systems, ABB takes the uncertainty out of marine energy storage.

ABB's holistic approach includes complete mechanical, electrical, and control design, resulting in a simple, standardized package. The complete system is fully tested before delivery, allowing quick and easy integration once it is installed on board the vessel. The streamlined mechanical, electrical, and control interfaces require minimal work to integrate into any vessel, new or old.

### ABB Ability™ for the marine industry

ABB Ability™ is our unified, cross-industry digital capability. ABB Ability provides the services and solutions that integrate systems on land, sea and air. From collaborative operations to remote monitoring, motion forecasting and energy management, ABB Ability™ enables vessel operators to know more, do more, and do better, together.

With our ABB Ability™ Collaborative Operations Centers we enable next generation vessel and customer onshore operations. We bring advanced analytics,

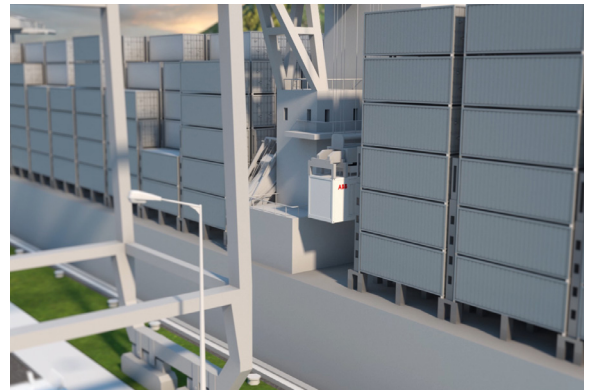
portals, and the possibilities of digital twin technology, to drive the digitalization of ship operations.

ABB's containerized energy storage system includes monitoring, diagnostics and data logging of the batteries and converters through ABB Ability™ Marine Remote Diagnostic System. The onboard data logging computer is ready for connection to ABB Ability™ Collaborative Operation Centers and ABB Ability™ Marine Fleet Portal, enabling global access by the vessel's owner and by ABB's experts when required.

#### Typical specifications:

• Batteries Energy capacity	Up to 995 kWh / 1.1 MWh
• Battery type	Lithium ion
• Cooling	Air or fresh water
• Power converters type	ABB ACS880
• Cooling	Air or fresh water
• Transformer	Dry type, LC filter integrated
• Power capacity	Up to 2 MVA
• Container dimensions	20' high cube (6050 x 2862 x 3100 mm)
• Mass with equipment	30 000 kg
• Ambient temperature range	-20°C / +40°C
• Internal climate control	Self-cooled unit
• Safety equipment	Fire and smoke detectors, manual alarm call point, PA/GA loudspeaker

### ABB's Containerized Energy Storage System is suitable for a wide variety of ships



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