Battery Energy Storage Systems (BESS)

Safe, scalable and reliable energy storage

Energy transition expertise

Backed by more than a century of designing power systems

Cummins has been delivering power solutions globally for more than 100 years, and is committed to helping you meet your carbon emissions goals. Our expertise expands beyond BESS technology into every component of a fully integrated and reliable power system. Today we're supporting the growing demand for continuous and reliable power with an innovative BESS product line. In addition, Cummins has designed, manufactured and tested switchgear and paralleling controls for over 60 years.

From generator sets and paralleling controls, to system-level controls, energy storage systems, switchgear and transfer switches, to the components that make up a microgrid, and digital solutions, Cummins designs, manufactures and factory-tests every component to ensure the highest reliability in the industry. Cummins is with you every step of the way — from the designing and supplying of equipment, to commissioning and service upgrades for the lifecycle of the system.

An all-in-one BESS solution with AC output that supports your energy transition

The need for reliable energy storage has become more pronounced with the global shift toward renewable energy sources. BESS technology plays a crucial role in addressing this need by storing excess energy generated during periods of low demand and releasing it during peak demand periods.

Preconfigured BESS units from Cummins offer safe and reliable storage in energy nodes ranging from 200 to 2280 kWh. Engineered for commercial, industrial, and mission-critical applications, these systems can enhance your resiliency by providing backup power during outages, and your sustainability by supporting the integration of renewable energy sources. They also offer economic benefits from energy cost savings and arbitrage.

Cummins BESS solutions are fully containerized, offer plug-and-play functionality with generators and controllers, and meet or exceed all major international requirements.

Ideal for a wide variety of applications

- **Backup power —** Alternative electricity supply when grid power fails
- **Off-grid power —** Energy solutions for remote locations
- **Energy arbitrage —** Buying and selling energy to take advantage of price differences over time
- **Peak shaving —** Supplementing grid power when demand and/or costs are higher
- **Renewable energy shifting —** Storing excess energy during peak production times (e.g., sunny or windy days) and releasing it when needed
- **Electric vehicle (EV) charging infrastructure —** Enhances the electricity grid to handle increasing loads for EVs, potentially preventing costly grid upgrades
- **Demand response and load management —** Managing the flow of electricity to meet demand while maintaining system stability
- **Microgrids —** Localized grids capable of operating autonomously

Fully integrated AC output BESS containers house liquid-cooled batteries, a power conversion system, isolation transformers, cooling systems, fire suppression systems and site-level controls to optimize performance, power density and efficiency.

01 **10-FOOT CONTAINER**
(211 and 422 kWh)

02 **20-FOOT HIGH CUBE CONTAINER**
(633, 1,056, 1,520 and 2,280 kWh)

Designed for maximum performance and safety

State-of-the-art battery technology

Cummins BESS solutions utilize lithium iron phosphate or lithium ferrophosphate (LFP) batteries, a proven and reliable technology. LFP cells offer higher cycle life and are less prone to thermal runaway than other battery chemistries. This enhances their safety and makes them ideal for industrial applications.

Maximum performance with liquid cooling thermal management

A glycol-based thermal management system maintains optimal battery temperatures more efficiently than air-cooled BESS units. This ensures uniform temperature distribution and increases performance while extending battery life and reliability.

Greater cooling efficiency also permits operation in high ambient environments, up to 50 °C (122 °F).

Three levels of fire safety

BESS from Cummins are equipped with three levels of safety systems:

- **Level 1 —** Real-time monitoring of each cell protects the BESS from faults and hazards such as short circuits, overvoltage, overheating and thermal runaway. Individual cells stop operating automatically if their safe temperature range is exceeded.
- **Level 2 —** The container is equipped with an FK-5-1-12 fire extinguishing system.
- **Level 3 —** A built-in water spray pipe allows an external fire hose to be connected to an internal sprinkler system inside the container.

For additional safety, the cabinet is equipped with real-time monitoring of heat and smoke for lithium-ion and combustible gases. Auxiliary support systems — including ventilation, humidity control and backup power supplies — ensure reliable operation under all conditions.

Optimal design for industrial use

High energy density

The Cummins fully integrated BESS solution comes in two architectural designs: a 10-foot container and a 20-foot high cube container, including the isolation transformer and power conversion system. The liquid cooling system for batteries is more efficient at managing high heat and provides more uniform temperature control, enhancing battery performance and lifespan.

Easy installation

Cummins BESS are completely self-contained, with plug-and-play functionality. Each unit is factory-pretested and validated. In addition, BESS solutions deliver seamless integration with Cummins generator sets and controllers.

Transportation-ready design

Cummins BESS are built into a 10-foot container and 20-foot ISO high cube container, which make transport simple. Convention for Safe Containers (CSC) certification allows the system to be transported on any cargo ship.

True on-grid and off-grid solution

Cummins BESS technology is one of the few power systems on the market that's suitable for off-grid applications. Power nodes can operate either in grid-forming (VF) or grid-following (PQ) mode for maximum versatility and resiliency. Each unit's power conversion system (PCS) is optimized for its respective power range.

A resource for your energy transition goals

BESS technology facilitates the integration of renewable energy sources by smoothing out power generation variabilities.

- Improves resilience and system reliability for microgrids.
- Renewable energy sources are inherently variable. BESS smooths out these fluctuations, providing a consistent power output.
- Lowers your dependence on fossil fuels when integrated with renewable energy sources.
- Enables arbitrage by storing energy when prices are low and discharging it when prices are high.
- Reduces your energy costs by addressing peak demand with stored energy.

The Cummins advantage

Global world-class aftermarket service

All BESS units are backed by the Cummins Global Service Network (see page 8 for more details) and covered by a comprehensive warranty.

Broad product portfolio

Cummins DER expertise extends beyond battery storage systems. BESS technology is part of a fully integrated range of DER products and services, including generator sets, fuel cells, microgrid controllers, transfer switches and switchgear.

Powergen technical expertise

When you partner with Cummins, you benefit from more than 100 years of power generation experience. Cummins designs, manufactures and factory-tests every component to ensure the highest quality, reliability and safety in the industry.

In addition, only Cummins provides you with the ability to put any power challenge to the test. The Power Integration Center (PIC) is a dedicated lab designed by leading Cummins engineers and advisors for the configuration and validation of microgrid power systems. This unique resource allows you to quickly test and refine multiple power options in a risk-free environment without changing wiring connections. With the freedom to design unlimited scenarios, you can optimize any BESS solution before commissioning.

Designed for mission-critical, commercial and industrial sites

Off-grid	Energy management	Resiliency
▪ Remote communities	▪ Manufacturing/ Industrial sites	▪ Data centers
▪ Mining	▪ EV charging infrastructure	▪ Healthcare facilities
▪ Oil and gas	▪ Commercial properties	▪ Commercial properties
▪ Remote industrial	▪ Universities / Research institutes	▪ Public facilities
▪ Island power		▪ Water / Wastewater treatment plants

BESS technical specifications

Energy nodes	211, 422, 633, 1,056, 1,520, 2280 kWh
Battery chemistry	Lithium-ion (LFP)
Voltage and frequency	380V to 415V AC (50Hz)
C-rate / IP rating	0.5C / IP55
Operating temperature	-30 to 50 °C
Cooling system	Liquid-cooled batteries, HVAC (ambient inside the container)
Altitude	2,000m from sea level without derate
Certification / Compliance	**Battery rack / System** - IEC62619, IEC60536, UL1973, UL9540A, UN38.3, EU Battery Regulation 2023/1542 **Power conversion system and electrical** - AS/NZS 3000, IEC61558, IEC624777-1:2022, IEEE 1547, AS/NZS 4777 **Complete system** - CE/UKCA, LVD 2014/35/EU (IEC 62477-1:2022), EMC directive 2014/30/EU (IEC61000-6-2 & -6-4), REACH, EU Battery regulation 2023/1542, IEC62933 (-5-1,-5-2), CSC for container, UN3536

Comprehensive support

A dedicated factory representative keeps you up and running

All Cummins service and support resources are managed through a single point of contact: your factory-direct account manager. Assigned specifically to you, your account manager gives you a direct line to the factory with no middlemen, ensuring rapid response from the entire service system.

Your knowledgeable, single-source contact is dedicated to saving you time and hassles with fast, reliable service every time.

World-class service and support

With the largest global and local support footprint in the industry, Cummins owns, trains and controls its entire distributor network. You'll always have a direct connection to qualified BESS experts.

- Best-in-class **aftermarket capabilities** are provided through a dedicated local contact who is supported by a global system of service technicians, engineers and parts distribution centers.
- **Technical support** representatives always have the most up-to-date skills and equipment, with additional resources available on an as-needed basis.
- All Cummins **parts distribution** centers are linked by a fully integrated database, enabling you to search for parts anywhere in the world.

CONTACT

For sales and ordering, please contact your local sales manager via the dealer and distributor network at **locator.cummins.com.**

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