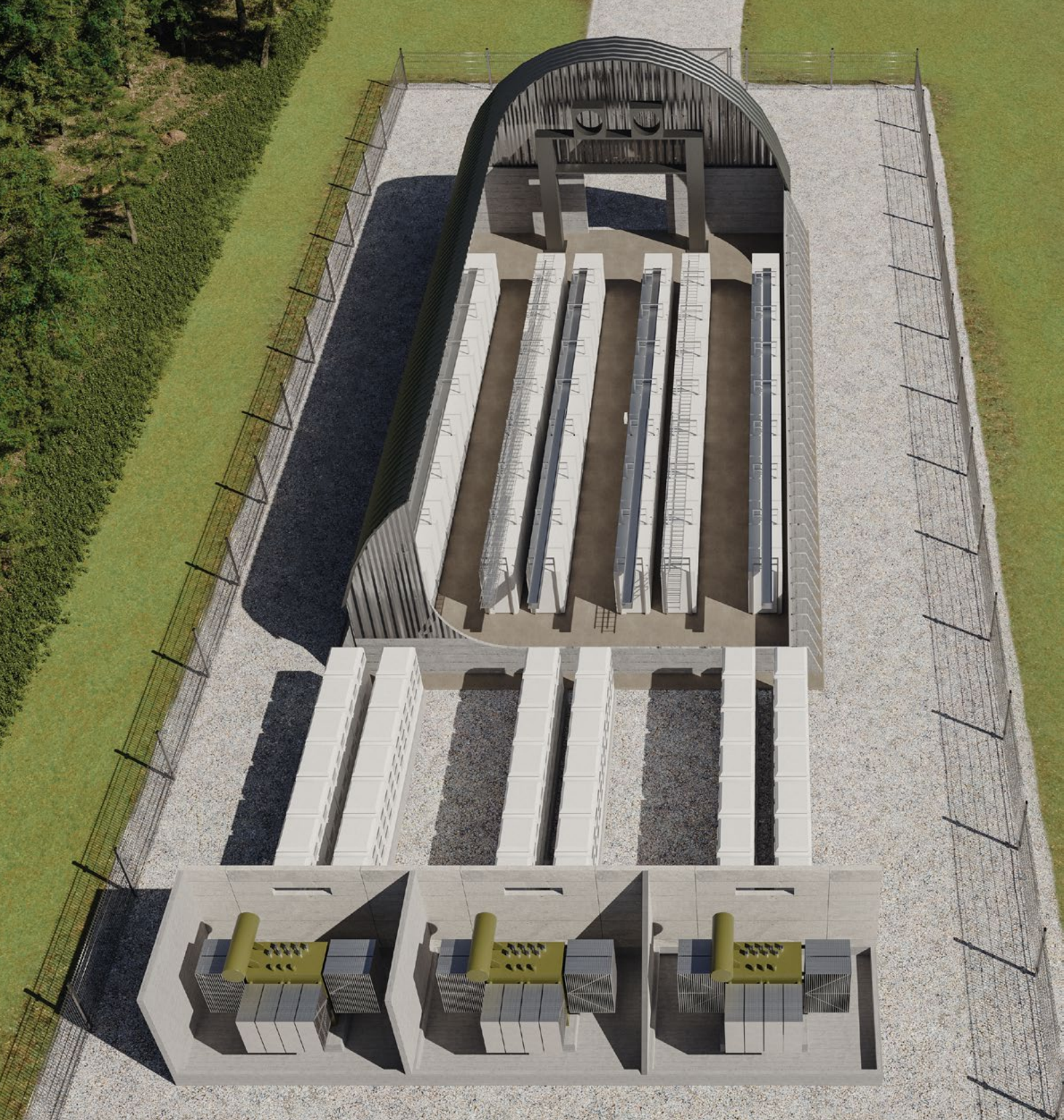




MERUS POWER

Merus[®] ESS

ENERGY STORAGE SYSTEM



Merus Power, a Finnish leader in the energy storage solutions sector, specializes in the manufacturing and system integration of Battery Energy Storage Systems (BESS).

With a solid track record of deploying over 200 Megawatts of Merus® ESS projects, we stand out as a technology company with our own PCS converter and EMS production. Additionally, we excel in Engineering, Procurement, and Construction (EPC) services, and full project development, including thorough business case analysis.

All you need for a future-proof energy storage project.



BESS technology manufactured in Finland

- The core of our system features Bi-directional inverters, a proprietary system level control platform, and an Energy Management System (EMS), all designed and manufactured by Merus Power.
- We source batteries from the global market, selecting the best options to meet the specific needs of our customers' projects.



Multiple simultaneous applications



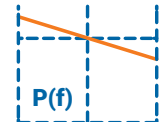
Dispatch



State of charge control



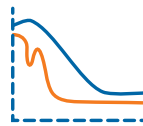
Grid forming



Droop control



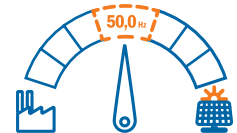
Black start



Ramp rate control



Peak shaving



Frequency regulation



Turnkey delivery

We begin by crafting an optimal business case for each customer, ensuring full system delivery that includes installations, project management, commissioning, grid code compliance, and acceptance tests. The lifetime value and availability of the system are guaranteed through Merus Power's Operations & Maintenance service and our trading service.

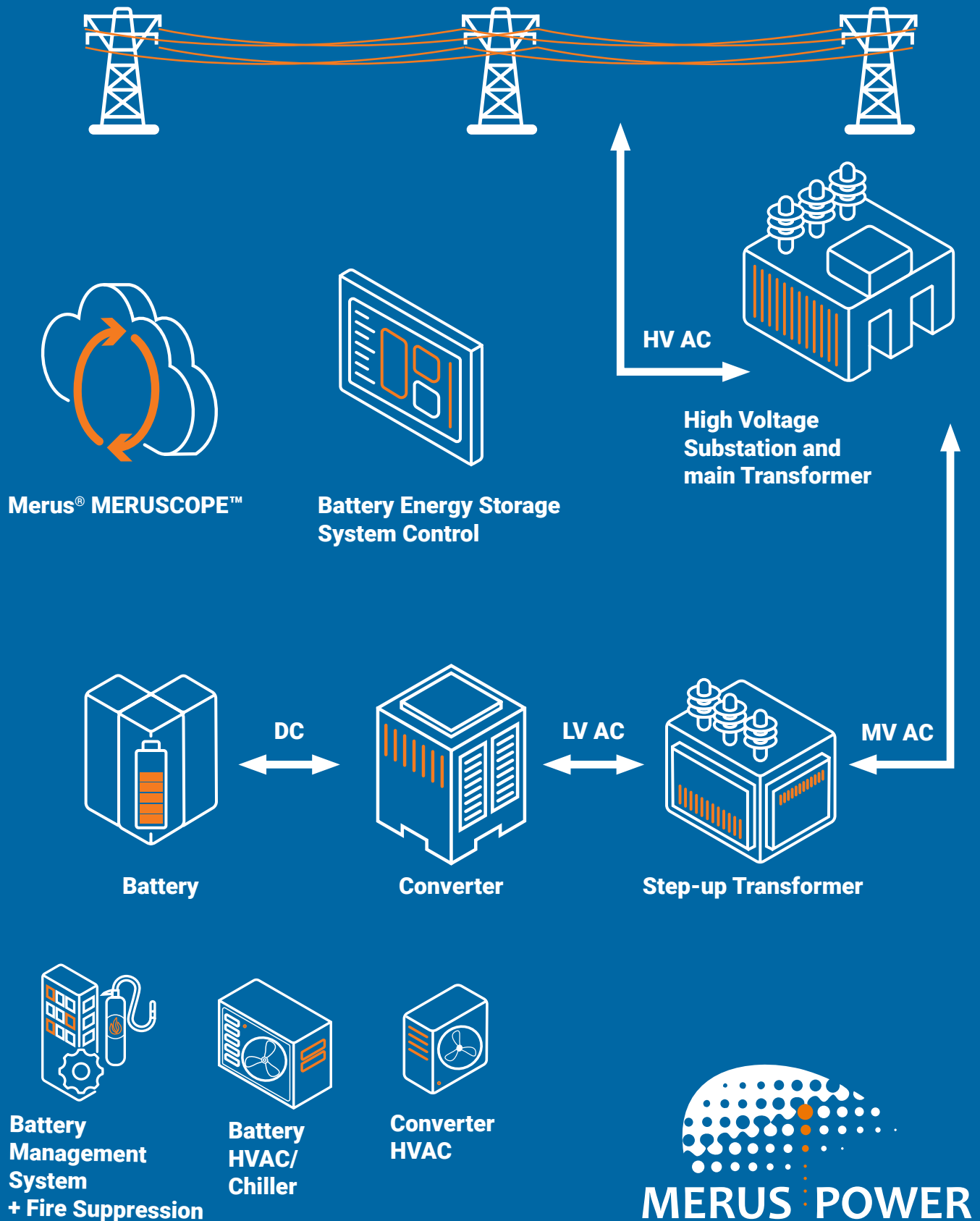


Industry-leading Safety

The Merus® ESS features a robust and redundant design across multiple levels to maintain system operation even if individual components or smaller systems fail. It incorporates robust components designed to withstand various malfunctions and heavy-duty environments, including cold climates and coastal conditions. We collaborate closely with fire departments and other local authorities, ensuring the implementation of best industry practices for critical infrastructure-level cybersecurity.

Merus[®] ESS – It's not just a battery.

Merus Power has the ability and experience to carry out projects with both Medium and High Voltage connections.



Many different applications

Wind and solar power

- Optimizing production and providing ancillary (frequency regulation) and backup services.

Commercial and industrial applications

- Reducing energy costs and earning new revenue streams.

Grid balancing

- Stand-alone projects to provide ancillary services and other revenue streams.

Turbine-based generation

- Increasing turbine lifetime and nominal production.

Distribution System Operator

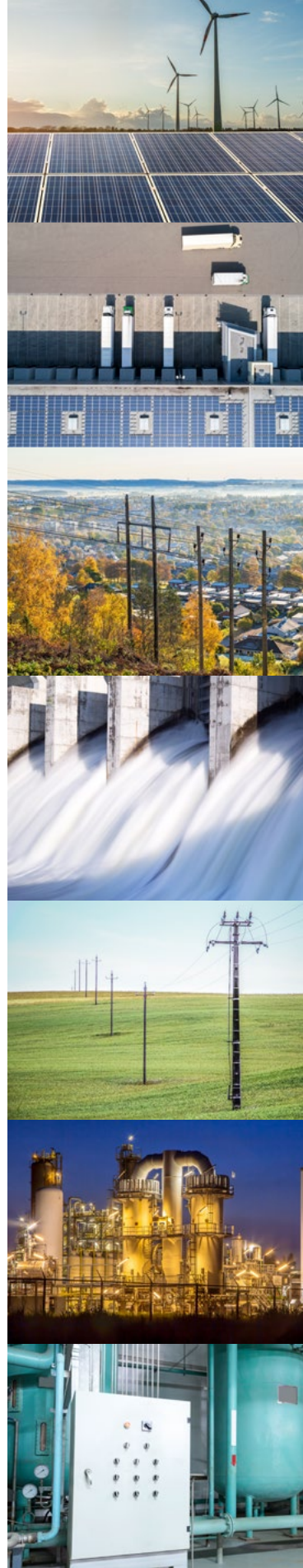
- Securing power supply, improving power quality, and earning from ancillary markets.

Microgrid

- Optimizing energy consumption and production, providing back-up and ancillary services.

Electric boilers

- Joint operation to increase market revenues.



Scan the QR code to access the latest in energy storage systems from Merus Power. Find articles, news, and blog posts about Merus® ESS and our projects.

See what we have achieved in the energy storage sector and learn more about our offerings!



Merus[®] ESS

Modular 1-5MW system

- **Modular Power Conversion System**
 - Consists of 1MW independent power modules, installed up to 5MW per transformer winding
 - High efficiency (98.8% peak)
 - Both grid-following and grid-forming operation
 - DC-voltage up to 1500V
 - AC voltage connects to 690-800V

Connection point (PoC)

- Medium (6-33kV) or High voltage (>100kV)

Installation environment

- Fully outdoor suitable
- -40°C to +40°C

Merus[®] Control Platform (EMS)

- Designed and manufactured in-house by Merus Power
- High-level controller enabling >100MW integration
- High-performance grid forming capability
- Aggregated control of various energy storage subsystems at any voltage level

Battery type

- LFP chemistry
- C-rate 1-0,25C (1–4 hours or longer durations if otherwise requested)
- 20 ft containers or standalone outdoor racks
- Liquid-cooled

Safety and protection

- Fire monitoring smoke and gas detection
- Automatic alarm forwarding to fire department
- Fire extinguishing gas or aerosol

Compliance

- IEC-62933, Grid codes EU and UK, CE-label
- UL9540A, IEC62619, UN38.3
- Grid Code Compliance documentation, acceptance tests, and simulation models included in Merus project deliveries

Warranty

- Standard 2 years, option up to 10 years
- Flexible energy capacity warranty
- Availability guarantee
- Performance guarantee

Interfacing

- Monitoring and control interface for 3rd party
- IEC104, Modbus, MQTT, OPC

Footprint

- ~25 m² / MWh 1h
- ~10 m² / MWh 2h

Power / Energy (MW / MWh)	Footprint (m) Including PCS, transformer, and battery excluding service areas	Area (m ²)
3.5 / 3.7 (1h)	8.4 x 11	92
7 / 7.4 (1h)	13.4 x 14.4	193
5 / 12 (2h)	24.3 x 5.8	141
10 / 24 (2h)	31.1 x 5.8	180
30 / 72 (2h)	31.1 x 24.4	759



Merus[®] MERUSCOPE[™]

Remote Monitoring & Control Service and Electrical Market Trading Platform

Real-time monitoring

Remote monitoring service enables you to monitor the performance of your energy storage solution in real-time, providing insight into its health, status, and performance. This allows you to detect issues early and diagnose problems before they become critical, reducing downtime, and preventing costly repairs.

Predictive maintenance

Track the condition of your ESS over time and identify patterns that may indicate future issues. This allows you to perform proactive maintenance, replacing parts or making repairs before they fail, further reducing downtime and repair costs.

Remote control

Adjust the settings of your battery energy storage solution remotely, without the need for an onsite visit. This enables you to quickly respond to changing conditions and optimize your system's performance without the need for expensive and time-consuming site visits.

Maximizing ROI

Performance monitoring over a long period of time optimizes the Return on Investment (ROI) of BESS by maximizing its uptime and efficiency, reducing downtime and repair costs, and ensuring that you get the most out of your investment. MERUSCOPE[®] follows the batteries' cyclical usage and ensures that the manufacturer's guarantee conditions are followed.



Trading and analysis service

In the Nordic region, Merus Power serves as your pathway to the market, equipped with proprietary trading software. Our market analysis service delivers the most current market insights and crafts trading strategies to optimize your Return on Investment (ROI).



Merus[®] Control Platform (EMS)

Merus Power's in-house developed Energy Management System (EMS) controls all energy storage components and integrates distributed generation, flexible loads, and switchgear. It connects all assets to SCADA and cloud platforms for monitoring, offering very high integrability through fiber optics, hardwired signals, and Ethernet.

Merus Power

Electrify your Future

Merus Power is a global technology company headquartered in the city of Ylöjärvi, Finland where we design and manufacture Finnish innovative battery energy storage systems and power quality solutions. Scalable and modular power electronics, intelligent software technologies and electrical engineering expertise are the base of our business.

Merus® Solutions can be easily tailored to a variety of applications and can meet small and large-scale customer needs with their modular structures. Their compact size, design, and scalability allow simple and cost-effective integration into many electrical systems.

Over the years we have worked with various customers in industry, utility, infrastructure, and renewable energy applications in over 70 different countries.



Send us an email to sales@meruspower.com.
One of our sales reps will be in touch with you as soon as possible.

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