

The Future of Renewable Power Plants

Hybrid Control

Dynamic Reactive Power Compensation

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Senior Sales Manager

29.9.2026



Merus Power Plc ●

2008

Founded

160[↑]

Personnel

01/2026

54.6 M€

Revenue

2025

70+

Countries with
our solutions

We design and manufacture Finnish innovative battery energy storage systems and power quality solutions.

Our business is based on scalable and modular power electronics, advanced software technology and electrical engineering expertise.

Our company is headquartered in Ylöjärvi, Finland.

Our staff represents internationally valued expertise.

We operate in a global and fast-growing market.

Merus Power's scalable product portfolio



Energy Storage solutions



Merus[®] ESS

Battery Energy Storage System

Power Quality solutions

Low voltage 200 V – 690 V (LV)

Medium-voltage 1 kV – 36 kV (MV)

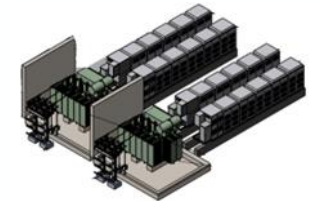
Merus[®] A2 Active Harmonic Filter



Merus[®] HPQ Hybrid Power Compensator



Merus[®] STATCOM Static Synchronous Compensator



Merus[®] SVC Static Var Compensator



Renewable power plants at the grid connection

- **Dynamic reactive power compensation**
 - What support does the grid require, which solutions can provide it, and how do we demonstrate compliance?
- **Hybrid control**
 - How do wind or solar generation and battery storage operate together within the same grid connection limits?

Grid requirements beyond hybrid control

- Growing renewable generation is changing grid requirements in Europe
- New grid codes increase demand for power quality solutions
- Each project must define the grid support required at its connection



Demonstrating grid compliance

- **Simulations demonstrate compliance with the applicable grid code**
- Project requirements may include:
 - Asymmetric reactive power support
 - Active and reactive fault-current injection
 - Grid-forming capability

Grid support options

- **Synchronous compensator**
 - Rotating mass provides inertia
- **STATCOM**
 - Dynamic reactive power compensation
- **E-STATCOM**
 - Energy storage enables brief active and reactive power support
- **Grid-forming BESS**
 - Active and reactive power support with larger energy storage capacity



Adding battery storage to an existing renewable power plant

How can wind or solar generation and battery storage operate together within the same grid connection limits?

What needs to change in the existing plant?

How are power limits and control priorities managed?

Who takes responsibility for integration and compliance verification?



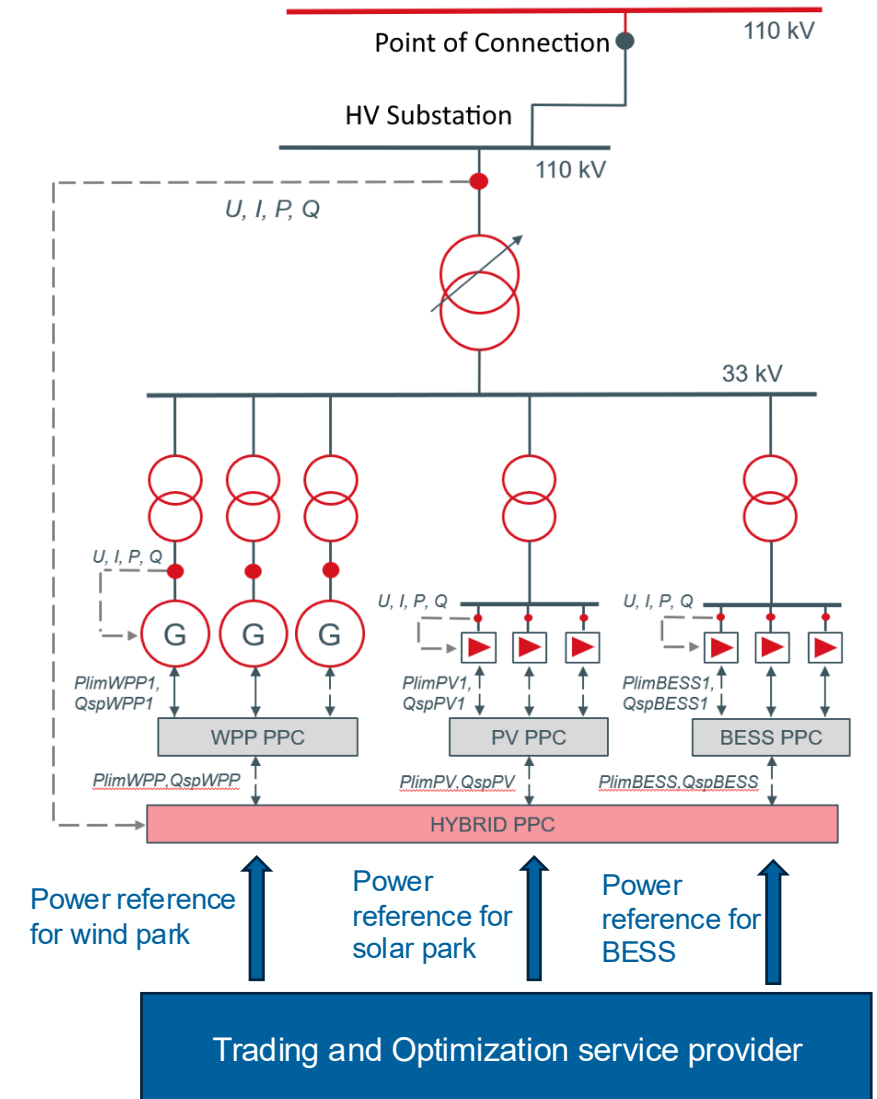
AI-generated illustration · Not a project reference

Merus Power's delivery concept

Hybrid control, BESS integration, modelling and site testing, with project-specific responsibilities agreed upfront.

Hybrid control in practice

- Coordinates wind, solar and storage within shared grid limits
- Passes market power targets to each plant and limits active power using agreed priorities
- Coordinates reactive power and voltage control using available capacity
- Follows the control concept and compliance requirements agreed for each project



Integrating storage into an existing wind farm

01

Scope and requirements

Agree project scope, responsibilities and applicable grid requirements upfront.

02

Plant interfaces

Adapt existing plant controls and measurements for hybrid operation.

03

BESS and hybrid control

Merus delivers BESS integration and hybrid control within the agreed scope.

04

Modelling and site tests

Merus prepares the hybrid model and performs grid-code site tests within the agreed scope.

Thank you for your attention!



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