

# Merus Power

SEB Small & Mid Cap Day in Helsinki  
22.9.2022

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22.9.2022





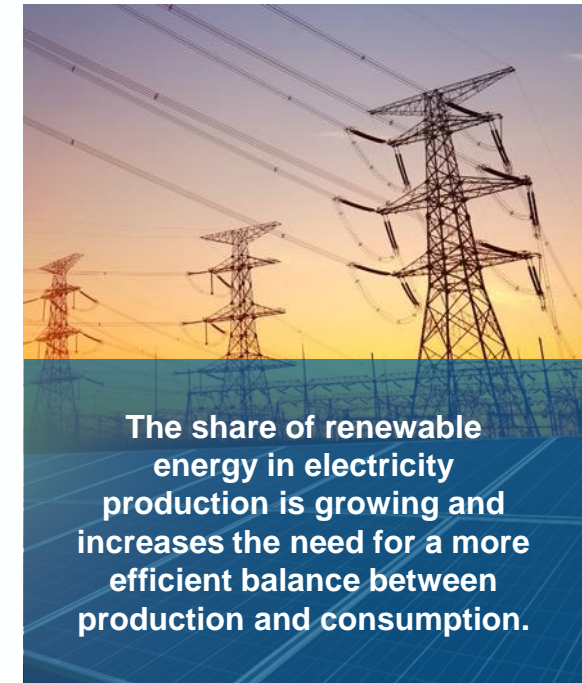
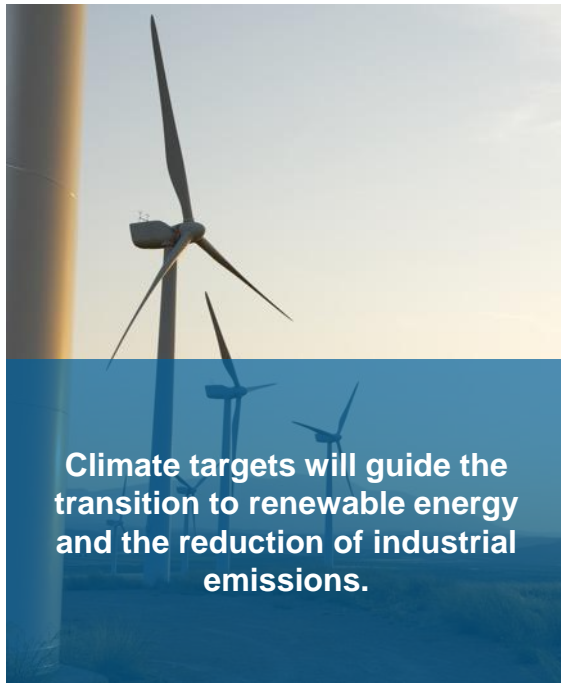
# MERUS POWER

## Electrify your Future

We enable the growth of renewable energy  
in electricity networks and improve the  
energy efficiency of society.



# Global transformation of energy market supports our growth



Imbalances in electricity production and consumption need to be managed more effectively and energy efficiency of industries needs to be improved.

# Products and Services

## Energy Storages and renewable energy integration



**Merus™ Energy Storage Solution** supports the operation of the electric grid by enabling the storage and integration of renewable energy into it.

## Power Quality Solutions



**Merus™ Power Quality solutions** improve industrial energy efficiency, increase productivity and support the functionality of the electric grid.

## Services



**Merus™ Services** ensure the optimal operation and return on our customers' investments throughout their life cycle.

# Our scalable product portfolio

## Energy Storage solutions

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Merus™ ESS  
Energy Storage System

## Power Quality solutions

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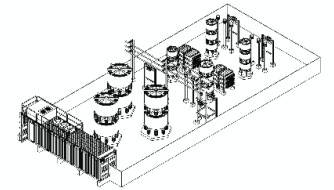
Merus™ A2  
Active Harmonic Filter



Merus™ HPQ  
Hybrid Power Compensator



Merus™ STATCOM  
Static Synchronous Compensator



Merus™ SVC  
Static Var Compensator





# One technology multiple innovative solutions

**Advanced Power electronics**



**Leading electrical engineering**



**Reliable control software**



**Energy storage solutions**

**Harmonic mitigation and  
reactive power compensation**

**Renewable energy integration**



# Our strategy

## Cornerstones of our growth

### Scalable product portfolio

Enables growth and profitability

### Multichannel sales strategy

The right markets and partners

### Energy storage systems: Growth in Europe

System supplier position in  
the value chain

### Power quality solutions: Local and global presence

Solutions  
for integrators

### Services: Increasing share

Merus™ WISEENERGY  
service for all products

14,8 M€

80 M€

## Megatrends support our growth

Climate and  
emission targets

Green transition and  
investment programs

Sustainability

Turnover<sup>1)</sup>  
2021

Turnover target  
2026

# Our scalable technology has many applications



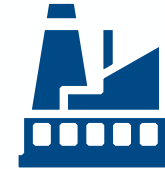
## Renewable energy

Solar power farms, wind farms  
hydropower plants  
Industry's own power generation  
Smart grids, microgrids



## Infrastructure and utilities

Water and wastewater treatment plants  
Electric car charging points and network  
Substations, transmission and distribution utilities  
smart grids, microgrids



## Heavy industry

Mining, mineral and cement industry  
Iron and steel industry  
Oil and gas industry



## Commercial buildings

Data and IT centers  
Shopping centers and malls  
Airports  
Hospitals

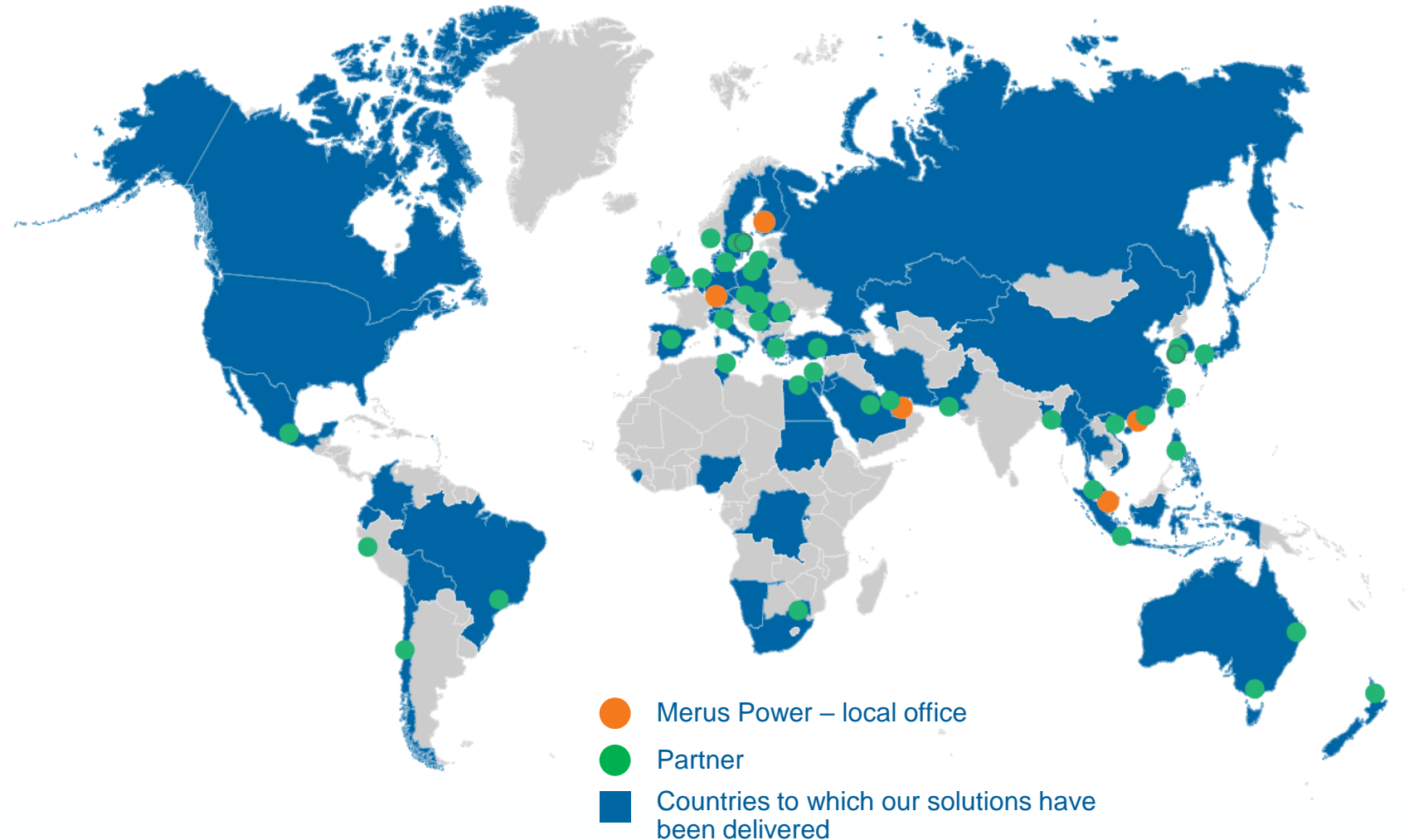


## Light industry

Industries with fast fluctuating loads  
Critical process industry  
Manufacturing industry



## Global collaboration network



60

## Countries with our solutions

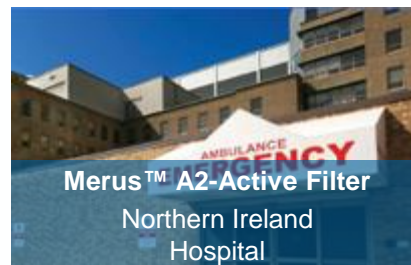
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## Countries with partners

5

## Local Office<sup>1)</sup>

# Our references from around the world





# Our handprint is visible globally

We work for the UN Sustainable Development Goals.

Through our business, we contribute to the sustainable and energy-efficient development of the economy and society globally.

Our energy storage and power quality solutions have already been delivered to

## 60 countries.

Annual CO2 emission reductions for our customers<sup>2)</sup> is  
**over 110 000 tons**

This means  
**over 910 000**  
London-Madrid  
passanger flights

Our solutions  
have enabled  
**446 MW**  
of renewable energy  
connected to the grid

Our share of the Finnish  
electricity market's usage  
reserve<sup>1)</sup> is  
**12 %**



- 1) Merus Power's management assessment. The company's share is 12 MW of Finland's frequency-controlled operating reserve, which is a total of 103 MW in 2022. (source: Fingrid).
- 2) Merus Power's management assessment. Emission reductions have been assessed from the perspective of the Company's customers and with the Company's current equipment.

# Main drivers for Merus Power growth and profitability

## Green transition

**Green transition** supports Merus Power business from both sides

**High penetration** of renewable energy and **de-centralization of the grid** will create new market opportunities where Merus Power can utilize power quality and energy storage synergies.

## Energy Storage market growth create “unlimited” opportunities

**New earning models** will be created for customers from the challenges of renewable energy – mainly in the frequency reserve markets.

**Volatile energy price** makes energy arbitration feasible

**Electrification of transportation** needs technology and solutions to make it happen.

## Power Quality benefits from the same megatrend

**Energy saving** investments are now more profitable than ever

Established **key accounts and partner network** will create continuous repeatable business. Recurring revenues are received from digital services that supports profitability

**Standardization** and economies of scale will improve profitability.



# What makes us different in ESS competition

## Control of key technologies in ESS solutions

**Deep proven technology** know how in power electronics will keep us competitive ( PCS systems )

**Own ESS/EMS software development** create ability to respond to swift market changes

**Technology and grid integration** capability supports future drive towards lower costs

## Power quality competence and turn-key capability

**Long experience** in delivering systems in difficult technical and commercial environments give confidence in delivering significant size contracts and open growth opportunities.

**Power quality** experience give competitive advantage in certain niche market segments such as remote power and microgrids.

## Flexible and agile working model and partnership capability

**As moderate size company**, we have fast decision making process, since the key competences are centralized in Nokia.

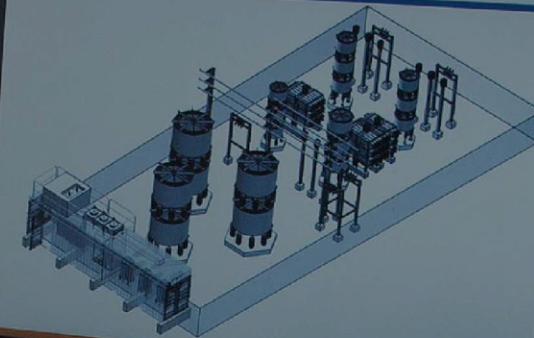
**We are small enough** to be able to listen to the customers unlike global giants.

**Partnerships create repeatable** system business instead in comparison to project based business model.

# Our success stories

MERUS POWER

Merus Static Var Compensator





# Merus™ A2 in 175 MW wind farm application

- One of the world's largest active harmonic filtering system
- Guarantees Transgrid grid code compliance in the point of common coupling POC for harmonics for 175MW windfarm
- Enables tuning of windfarm converters to optimize active power production
- Four independent systems
- Grid connection to MV busbar via step up transformers
- Enhances power quality by filtering harmonics and provides dynamic reactive power compensation



**Location:** White Rock wind farm, Australia

**Capacity:** 4 x 5MVA Merus™ A2-Active Harmonic Filters in 33kV in 175MW windfarm

70 Goldwind turbines

**Year of commissioning:** 2019



# Merus™ ESS in Logistics center with solar power production

- Fully supporting the operation of the smart grid running on renewable energy
- Provides opportunity for a new source of income by enabling participation in the frequency response services
- Significant energy and cost savings
- Optimized and effective use of solar power
- Possibility of off-grid operation
- Improves power quality



**Location:** Järvenpää, Finland

**Capacity:** 20kV 50Hz 2.6MW 2.3MWh

**Year of commissioning:** 2019



# Merus™ ESS in 20 kV Energy Community

- Fully supporting the operation of the grid running on renewable energy
- Provides opportunity for a new source of income by enabling participation in the frequency response services
- Uninterruptible power supply
- Optimized and effective use of solar power
- Black start ability for the microgrid
- Possibility of off-grid operation
- Improves power quality



## LEMENE Energy Community

**Location:** Lempäälä, Finland

**Capacity:** 20kV 50Hz 1.6MW 1.3MWh

**Year of commissioning:** 2020





# Merus™ ESS in 44 MW wind farm application

- One of the Nordic's largest energy storage systems
- Revenue from Fingrid's frequency response service markets
- Storage of excess wind power for better income on spot markets
- Black start ability for wind turbines during grid failure
- Uninterrupted electricity for the wind farm's own consumption during grid failure
- Dynamic reactive power control
- Peak shaving



**Location:** Ii, Finland

**Capacity:** 20.5kV 50Hz 6MW 6MWh Merus™ ESS

**Year of commissioning:** 2021



# Merus™ STATCOM in Gold mine application

- Power generation with hydro power and diesel generators
- Large number of VSDs and large DC winder
  - Generate lot of harmonics
- Fuel savings by optimizing the power consumption
- Energy savings by reducing harmonics and improving power factor
- Longer life-time of equipment with better power quality and stable voltage
- Production improvement by reducing downtime



**Location:** Africa

**Year of commissioning:** 2019?

- Merus™ STATCOM
- 4 x 11kV 4MVAR C-type 5th harmonic filters
- 2 x 11kV 4MVAR 3rd harmonic filters



# Our strengths

**Our scalable high-tech solutions contribute to the sustainable energy<sup>1)</sup> revolution.**

**Global megatrends support strong growth in the demand for renewable energy and our energy storage systems.**

**Our power quality solutions improve energy efficiency in industry and reduce CO<sup>2</sup> emissions.**

**Our well-established business in power quality solutions supports our growth and creates a strong foundation for our product development.**

**Our growing service business utilizes digitalization thus enables continuous cash flow.**

**We have global sales channels and strong partnerships.**

**Our engineering expertise is internationally recognized.**



# Thank you for your attention!



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