



Merus Power Recognized for

2021

Technology Innovation Leadership

Global Power

Quality Industry

Excellence in Best Practices

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Merus Power excels in many of the criteria in the power quality space.

AWARD CRITERIA	
<i>Technology Leverage</i>	<i>Business Impact</i>
Commitment to Innovation	Financial Performance
Commitment to Creativity	Customer Acquisition
Stage Gate Efficiency	Operational Efficiency
Commercialization Success	Growth Potential
Application Diversity	Human Capital

Merus Power Plc (Merus Power), headquartered in Nokia, Finland, was founded in 2008 by the former leaders of Nokian Capacitors. The company had a mission to develop active power quality solutions, a niche that at the time was exclusively led by Tier I electrification product original equipment manufacturers (OEMs). Merus Power today is a globally recognized green technology company with a core focus on innovative power quality and energy storage solutions. The company’s power quality solutions improve industrial energy efficiency, increase productivity and support the functionality of the electric grid, while the energy storage solutions support the operation of the electric grid by enabling the storage and integration of renewable energy into it. Merus Power’s solutions are based on scalable technology, which enables the use of products and services in a wide range of different application needs.

Customer-Driven Creativity and Commitment to Innovation

Where larger Tier I competitors often follow a more strict practice and offer a standard catalog product, Merus Power pursues to serve its customers the solution they need. In addition to conventional solutions, unique project specifications regarding connection types, system control design, and system functionalities demand high levels of expertise, engineering, and customization to identify the best possible solution. That is where Merus Power differentiates. Coupling robust quality standards with an exceptional level of freedom, the company’s R&D engineers devote great effort to adapting existing

“Merus Power’s successful platform approach allowed the company to exhibit one of the market’s broadest power quality portfolios in a relatively short period of time. It also provides great advantages in terms of development and costs, supply chain, and stock management.”

**- María Benintende,
Principal Analyst**

products and creating new solutions. Customization challenges constitute a dynamic and customer-driven source of creativity for Merus Power. Such a culture of innovation provides critical differentiation from Chinese, Indian, and Taiwanese manufacturers, whose low-cost bulk product is a difficult field to compete in.

An example of Merus Power’s applied innovation to solve ad hoc challenges is an energy storage system, Merus™ ESS provided for Lempäälän Energia’s LEMENE microgrid in Finland. In 2018, the company was challenged to provide a ready-made solution capable of connecting both fuel cells

and lithium-ion batteries under a single power conversion system (PCS). Despite the relative novelty of energy storage systems for the company at the time, it leveraged its power electronics understanding from previous products to design and manufacture the energy storage system’s PCS and control system. Once integrated, the solution enabled the direct connection of third-party fuel cells to the energy storage system and its controls, facilitating energy storage and renewable energy integration and injection into the grid. A distinctive feature of Merus™ ESS is its power quality improvement functionality, allowing it to be utilized at all times regardless of the battery's cycles.

Merus Power’s customer-focused approach also translates into new product releases. Designed with client input, Merus Power’s Hybrid Power Quality compensator (Merus™ HPQ) overcomes the limitations of traditional capacitor banks at clients’ installations. Merus™ HPQ combines a detuned capacitor bank with Merus™ A2-Active Harmonic Filters, providing better performance at a lower cost.

Technology Incubation

Another highly intriguing and differentiating aspect of Merus Power, especially compared to large and traditional OEMs, is its shared technology platform. Owing to their long history in active power quality solutions (dating as far back as the 1970s) and multiple acquisitions, conventional Tier I power quality OEMs have developed multiple hardware platforms for their static VAR compensators (SVC), static synchronous compensators (STATCOM), active harmonic filters, and energy storage systems. Each has its own set of controllers and software, and they are generally produced in different manufacturing plants, managed by dedicated teams.

On the other hand, Merus Power started in 2008, allowing it to design a single platform that can incubate different products capable of covering a wide range of power quality applications. The company’s current technology platform is based on its second-generation Merus™ A2-module, a versatile core inverter that can be used seamlessly in energy storage systems, active harmonic filters, static VAR generators (SVG), and single conversion static uninterruptible power supply (UPS) systems. The Merus™ A2-module can connect to different devices (e.g., electrolytic capacitors, supercapacitors, lead-acid batteries, or lithium-ion batteries) as it can be customized in the software layer to meet specific applications’ requirements.

“Considering the company’s superior power electronics, software expertise, and strong pipeline of new projects, Frost & Sullivan believes Merus Power will fulfill its ambition to become an €80 million company by 2026.”

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This successful platform approach enables Merus Power to exhibit one of the market’s broadest power quality portfolios in a relatively short period. It also provides great advantages in terms of development and costs, supply chain, and stock management. Moreover, Merus Power manufactures all its products in-house while its R&D center ensures the technology is properly customized and incorporated to meet the intended application’s requirements.

“With these types of products, there are no limits to innovation. We can support any type of functionality within the controller so that clients can make millions of things.”

- Pedro Esteban, Director at Merus Power, Asia-Pacific

Frost & Sullivan finds that Merus Power’s market success is due not only to the quality of its products but also superior service delivery during the sales, project execution, and after-sales process. Merus Power’s service team comprises highly experienced power quality engineers. While larger vendors typically require multiple contacts and tickets to reach the right professional, Merus Power’s customers and distributors can find the answers to detailed questions and solve technical issues with a single point of contact.

Application Diversity and Commercialization Success

Merus Power’s products are used in diverse industries and applications (e.g., reserve and balancing power, harmonic and power factor distortions, voltage variations, unbalanced loads, and power interruptions). The company’s impressive list of success stories spans industries on five continents, ranging from food and beverage to textiles, smelters, commercial buildings, data centers, microgrids, and the integration of renewable generation and storage.

Aside from Merus Power’s expertise and project customization capabilities, the company’s diversity and global reach can be attributed to its successful channel-to-market strategy. Today, Merus Power’s primary route to market is through a network of integrators and distributors across 43 countries. From single-person firms and purely reseller companies to large integrators providing ready-made services and specializing in different markets (e.g., renewables, mining sites, commercial buildings, heavy industries, or datacenters), the consolidated partner network has been instrumental in the company earning numerous references and repeat business worldwide. Frost & Sullivan notes that a large part of Merus Power’s network was established during its early days, as its origins allowed the company to quickly build a network of its own for passive solutions for its then newly-created active power quality solutions, utilizing the strong contacts and partnerships built in the past on the traditional passive compensation products. Since then, Merus Power has maintained strong channel and technical support, allowing it to retain and expand a loyal base of strategic allies.

Further, Merus Power’s products are addressing industrial applications through white-label branding. For instance, its Merus™ Active Harmonic Filters are a preferred option for variable speed drive (VFD) manufacturers to deliver low harmonic drives. The company has also successfully established white-

level partnerships with national OEMs to facilitate access to challenging markets such as the United States, Malaysia, and China.

Human Capital

Merus Power has successfully leveraged expertise and international business contacts from its founding team, allowing it to expand to a team of more than 60 people, most of which are engineers with extensive experience across different applications and industry verticals. The company also enjoys strong connections to academia, further strengthening its already-robust R&D expertise. Another distinctive factor of Merus Power's human resources is that while many are relatively young, they are empowered to make important decisions, including spearheading innovation, resulting in world-class results. Such an approach provides Merus Power a fresh perspective while enabling it to attract and retain young creative talent.

Merus Power's leadership believes successful projects result from collaborative efforts between committed employees and business partners in an open and trustworthy environment. Unlike large corporations, Merus Power is flexible, making it easy to do business with. Its combination of a consultative teamwork approach, customer-centric focus, and highly skilled personnel, coupled with a passion for renewable energy integration and power quality, provides the company a distinctive DNA that is almost impossible to replicate.

Growth Potential

Merus Power is a fast-growing green technology company that has expanded at a 30% compound annual growth rate (CAGR) during the past decade. Its core products and functionalities align with trends shaping the energy and industrial space, and the firm is capable of solving the evolving challenges resulting from the clean electrification imperative. Frost & Sullivan's internal intelligence estimates that the power electronics market for renewable integration applications and power quality will expand at a 7.6% CAGR in the next five years.

A particularly attractive niche within the market is energy storage system inverters. Driven by grid flexibility and stabilization needs to accommodate larger shares of intermittent renewables, energy storage system inverters are poised to become the leading power conversion product in terms of growth, expanding at nearly 23% CAGR to reach \$2.3 billion by 2026. Merus Power combined its world-class power conversion systems with high-quality energy storage technology to create an energy storage solution, the Merus™ ESS, which captures this emerging growth opportunity. Launched in 2018, this energy storage solution is designed for grid-scale, commercial, and industrial systems.

A series of unique grid energy storage projects highlights Merus Power's evolutionary path as an industry pioneer. Apart from the LEMENE microgrid, Merus Power has integrated its energy storage solution to a PV rooftop and energy management system at grocery store chain Lidl's logistic center, and a wind power plant in Lapland to provide peak shaving and frequency control. As their latest innovation project, Merus Power is supplying energy storage systems and their network connection devices to Elenia and Fortum to help secure electricity supply in a sparsely populated area in Finland. In addition, the company is delivering two energy storage systems to S Group's logistic centers which are to participate in the new Finnish energy and frequency regulation markets and to store possible

overproduction of solar power, helping the logistics center to be carbon neutral.

The reasons behind the early success of the Merus™ ESS can be found in the multiple benefits it provides—including power quality—and the applications it can cover. Thanks to its superior control and converter technologies, the Merus™ ESS can be programmed to operate in different and combined operation modes. With reaction times of less than 100 microseconds and the possibility to connect part of the system's capacity to the ancillary services market, the energy storage solution is suitable to provide frequency response resulting in new streams of revenues for power generation facilities and industrial and commercial companies, through value-stacking. Considering Merus Power's superior power electronics, software expertise, and strong pipeline of new projects, Frost & Sullivan believes Merus Power will fulfill its ambition to become an €80 million company by 2026.

"I think it's wonderful how a fairly small group of people from a town in Finland can produce technological solutions of such high quality and performance that can successfully compete with huge global companies across the world. I'm proud of my colleagues at Merus Power."

- Markus Ovaskainen, Sales Manager at Merus Power, Americas

Conclusion

Frost & Sullivan's independent analysis of the global power quality market clearly shows Merus Power has a powerful competitive advantage by enabling unique and complex power electronics applications. A robust technology platform based on its innovative and ever-evolving Merus™ A2 inverter and controls along with an exclusive focus on power quality and energy storage and one of the industry's most comprehensive product portfolios allows the young company to compete with Tier I vendors successfully. Merus Power's high-quality product, unmatched customization capabilities, and high-level service have enabled it to grow and maintain a loyal base of channel partners and customers globally.

With its strong overall performance, Merus Power earns Frost & Sullivan's 2021 Technology Innovation Leadership Award in the global power quality industry.

What You Need to Know about the Technology Innovation Leadership Recognition

Frost & Sullivan's Technology Innovation Award recognizes the company that has introduced the best underlying technology for achieving remarkable product and customer success while driving future business value.

Best Practices Award Analysis

For the Technology Innovation Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization Success: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

