



Introducing Stationary Solutions



Providing Electrical Energy Storage Systems
for Microgrids & Customized Solutions
for Grid Networks

World-Class Energy Storage Solutions

Leclanché's Stationary Solutions

business is an innovator and global leader in supporting the large-scale energy storage needs of utilities, grid operators and commercial and industrial energy users.



MICROGRID

Our team creates environmentally and economically sustainable solutions for power generation in remote areas and islands. These systems leverage the integration of multiple renewable energy sources to ensure grid stability while reducing reliance on fossil fuels.



e-CHARGING

Our energy storage-supported, fast e-Charging systems, can play a vital role in marine and ground transportation such as electric ferries or buses, and help accelerate the transition towards cleaner mobility solutions.



COMMERCIAL & INDUSTRIAL

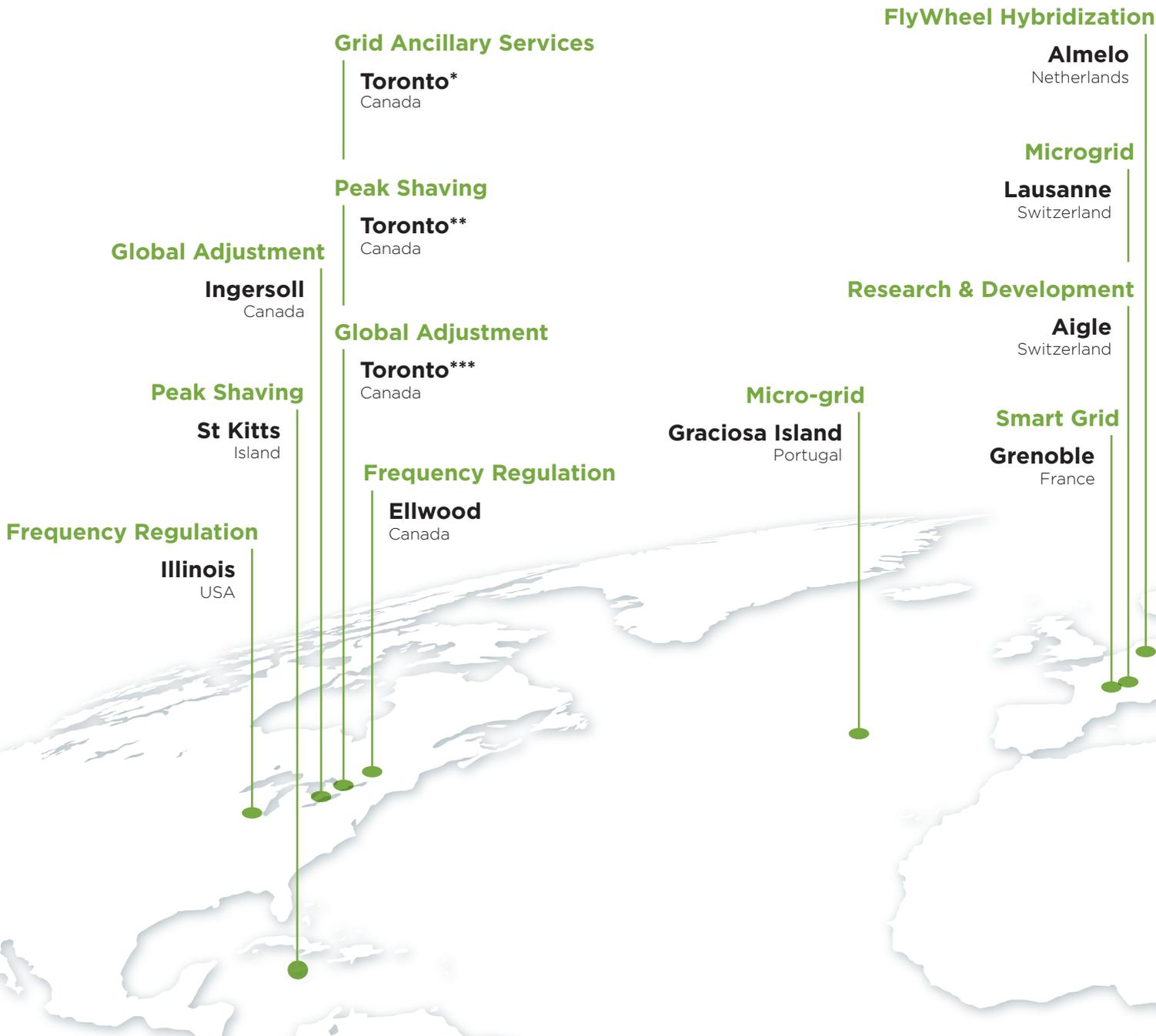
We are expert at designing energy storage systems that reliably reduce demand during peak periods and optimize the usage of onsite renewable energy both for behind-the-meter and grid-connected solutions capable of providing ancillary services back to utilities.

Worldwide deployment



57 GWh
of cumulative
renewable energy
throughput*

*as of April 2020



Why Leclanché

The company's history is rooted in more than 110 years of energy storage innovation and experience. Leclanché's proprietary manufacturing facility is based in Willstatt, Germany. From cells to modules, rack and EMS, the Company owns the entire value chain.

Leclanché Energy Management System (EMS)



Efficiency and reliability of electrical energy storage solutions (EESS) operations are ensured through the Company's proprietary **Energy Management System (EMS)**. With its wide array of diverse project references, and experience in meeting a range of customers' requirements, Leclanché's EMS ensures the most reliable and accurate reporting.

Unique control & application layer solution

Competences and Experiences

Bremen
Germany

Frequency Regulation

Cremzow
Germany

Ancillary Services

Cieszanowice
Poland



Containerized solutions
(metallic or concrete)



Fire Suppression System (FSS)



Thermal and mechanical simulation

Advanced Knowledge of Batteries



Leclanché advises on the best applicable technology achieving high quality either through its own cells or best cost through third-party cells. The Company's **advanced knowledge** of batteries makes it a complete system integrator.

Multi-skilled Engineering Team



Leclanché's **multi-skilled engineering team** can design the electrical energy storage solution compliant with the most demanding requirements. This experience allows the Company to widen the spectrum of possibilities offered to its customers.

- Customized Solutions
- Optimized battery lifetime
- High Safety Standards



Environmental commitment

At Leclanché, the environment is in our DNA. Our Yverdon-Les-Bains and Willstatt facilities are ISO 14001:2015 certified. But we go much further than simple compliance. All our technologies and marketplace solutions are designed to harness renewable energy sources in order to displace fossil fuels and allow newer, more efficient solutions to serve the business community and the public. We take our environmental responsibility very seriously.



We use a water-based production technology that has enabled us to get rid of organic (toxic) solvents.

The increase in quality controls throughout our production chain has significantly reduced waste.



As a result, CO₂ emissions are reduced thanks to:

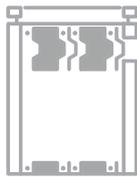
- Simplification and continuous optimization of manufacturing processes
- Low drying temperature and therefore less electric power
- Cell assembly without a dry room.

Interdisciplinary Technologies

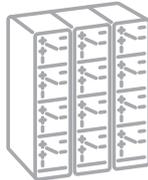
CELLS



MODULES



STRINGS



EMS



Leclanché's core technology expertise ranges from electrochemistry to energy management system (EMS) software. The company designs, develops and manufactures battery storage solutions including cells, modules, racks and battery management systems (BMS) for e-mobility and specialty battery systems in addition to complete energy storage solutions for stationary applications.

Leclanché focuses specifically on graphite-nickel-manganese-cobalt (G-NMC) cells with high-energy density and on lithium titanate oxide (LTO) cells, which ensure long-life and rapid charge/discharge applications.

The cells are integrated into custom casings designed and built to withstand vibration, shock and thermal challenges. They are also offered in a variety of power requirements to comply with each customer's needs. The casings have built-in liquid or air-cooling features across a range of sizes to guarantee efficient operation and controlled cell aging.

The company's proprietary EMS, coupled with the BMS, is integral to its solutions, and can be customized upon request. For budget-sensitive applications, Leclanché has developed partnerships with reliable suppliers, including battery manufacturers, to deliver the most cost-efficient solutions including power conversion systems to fulfill our customers' needs.



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