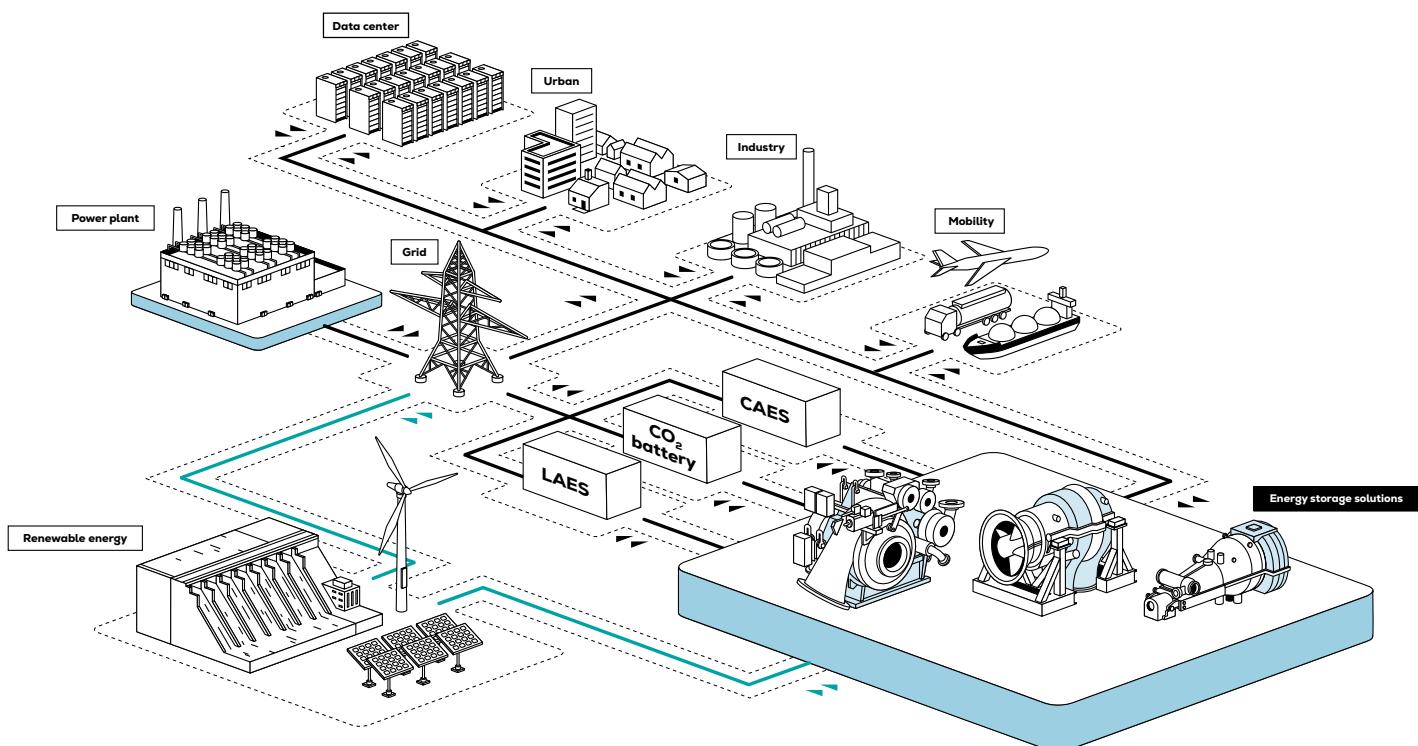


Energy storage solutions



Benefits at a glance

- Broad range of complementary storage technologies
- Deep expertise in selecting and tailoring the optimal storage solution for individual project requirements
- Global Engineering, Procurement and Construction (EPC) competence for complex multi-technology projects
- End-to-end integrated solutions with all components from a single source

Everllence

Green and fit for the grid

To reduce CO₂ emissions, global energy markets are moving away from centralized generation based on fossil fuels and towards renewable energy systems (RES) such as wind and photovoltaic. However, renewable energy is not always available when needed and can create instability in the grid due to its fluctuating nature. Everllence systems are key building blocks for decarbonization and help to solve these problems, balancing the supply and demand of renewable energy, and stabilizing grids. They also support the decarbonization of sectors such as heating, cooling, and mobility through long-duration thermal and thermodynamic storage solutions including ETES, CAES, LAES, and the CO₂ battery.

Integrating a high share of renewable energy

Adding renewables to a grid results in periods where there is too much or too little green electricity, stretching base load power plants and grid infrastructure to their limits. Currently, thermal power plants stabilize grids with their rotating masses and provide important services such as frequency control. With an increasing share of renewable energy, thermal power plants are being switched off and their functionality has to be provided by other elements in the power system.

Energy storage systems stabilize grids by storing surplus energy and making it available when needed. The stored energy can also be used directly in the form of heat and cold, or as fuel for transportation. Energy storage not only ensures a sustainable, reliable, and cost-effective power supply, but also integrates energy-consuming sectors with power producers through advanced long-duration storage solutions, which provide the flexibility needed to stabilize high-renewable grids.

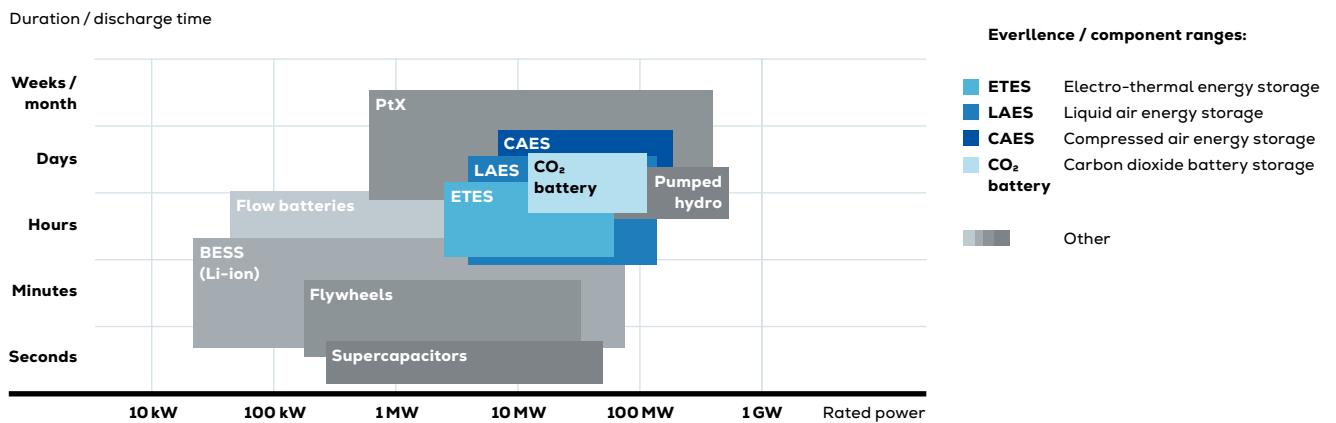
Flexible storage solutions

Thanks to their flexibility, energy storage systems can be used in many different applications. System operators, utilities, and IPPs, as well as industrial and commercial customers, can significantly improve the cost-effectiveness, security and sustainability of their energy supply.

Everllence offers turbo-machinery solutions for carbon dioxide battery storage (CO₂ battery), compressed air energy storage (CAES), liquid air energy storage (LAES) and electro-thermal energy storage (ETES). These technologies rely on Everllence compressors, turbines, and expanders as core components, enabling efficient and flexible operation across a wide range of storage applications.

Proven EPC excellence

As a global company with EPC competence in power plants, Everllence possesses extensive knowledge of complementary energy storage technologies. This means we can help our customers to find the optimal solutions for their specific challenges. One of our key skills is the integration of various systems and the capability to provide a complete solution from a single source including project development, project implementation, operations, and maintenance. We provide all the essential components for an integrated system, therefore guaranteeing the best possible performance of the system as a whole. Our competence is not limited to stationary systems, but also extends to storage solutions in marine applications.



System solutions

Carbon dioxide battery storage

Everlence provides the core turbomachinery components that form the heart of the CO₂ battery. In this long-duration storage system, high-performance compressors and expanders enable the closed-loop thermodynamic process of compression, liquefaction, evaporation, and expansion. Thanks to our flexible compressor and turbine portfolio, covering a wide range of pressures, temperatures, and flow rates, Everlence equipment can be integrated into CO₂ battery installations of various sizes and precisely adapted to project-specific performance and cycling requirements.

Liquid air energy storage

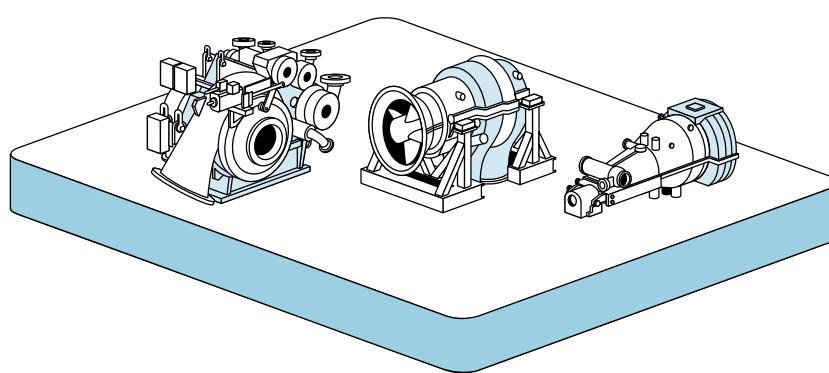
Everlence provides the core turbomachinery solutions for LAES installations, where air is cooled, liquefied, stored, and later expanded to generate power. Everlence compressors and expansion turbines form the heart of this process, delivering the pressure ratios and temperature conditions required for efficient liquefaction and controlled re-gasification. Our broad portfolio enables systems to be precisely matched to project-specific flow rates, temperature profiles, and operational cycles.

Compressed air energy storage

For CAES applications, Everlence supplies high-performance compressors and power turbines that drive the thermodynamic cycle of air compression, storage, and expansion. These components provide the flexibility needed to cover a wide range of pressure levels, storage configurations, and operating modes. With scalable turbomachinery solutions, Everlence equipment can be adapted to diverse CAES system designs, enabling efficient and reliable long-duration energy storage.

Electro-thermal energy storage

ETES is based on converting electrical energy into thermal energy by storing it in the form of hot water and ice. The thermal energy is kept in the form of high-temperature hot water and chilled or ice-based cold storage. It can be converted back into electrical power or used for process cooling or district heating, to mention two of many applications. This three-way multifunctional system is scalable, can be used regardless of site without geological or topographical constraints, and has a very low environmental impact.



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Key applications

• Grid services

Balancing fluctuations and managing frequency and reactive power through flexible long-duration storage technologies.

• RES smoothing and integration

Compensating the weather-based fluctuations of RES by storing surplus energy and releasing it when needed.

• Backup / UPS

Maintaining system stability, especially during emergency conditions and unforeseen load fluctuations, with reliable long-duration discharge capability and support for uninterrupted power supply (UPS) functions that ensure immediate power availability during grid disturbances.

• Long-duration energy shifting

Storing surplus renewable electricity over extended periods and supplying it during high-demand or low-generation phases to enhance grid flexibility.

• Sector coupling

Connecting the three end-use sectors of buildings (for heating and cooling), transportation, and industry with the power sector via thermal and thermodynamic storage systems such as ETES and the CO₂ battery.

• Heating and cooling

Absorption, storage and generation of thermal energy, e.g. for cooling or heating using high-efficiency thermal subsystems integrated into storage solutions.

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