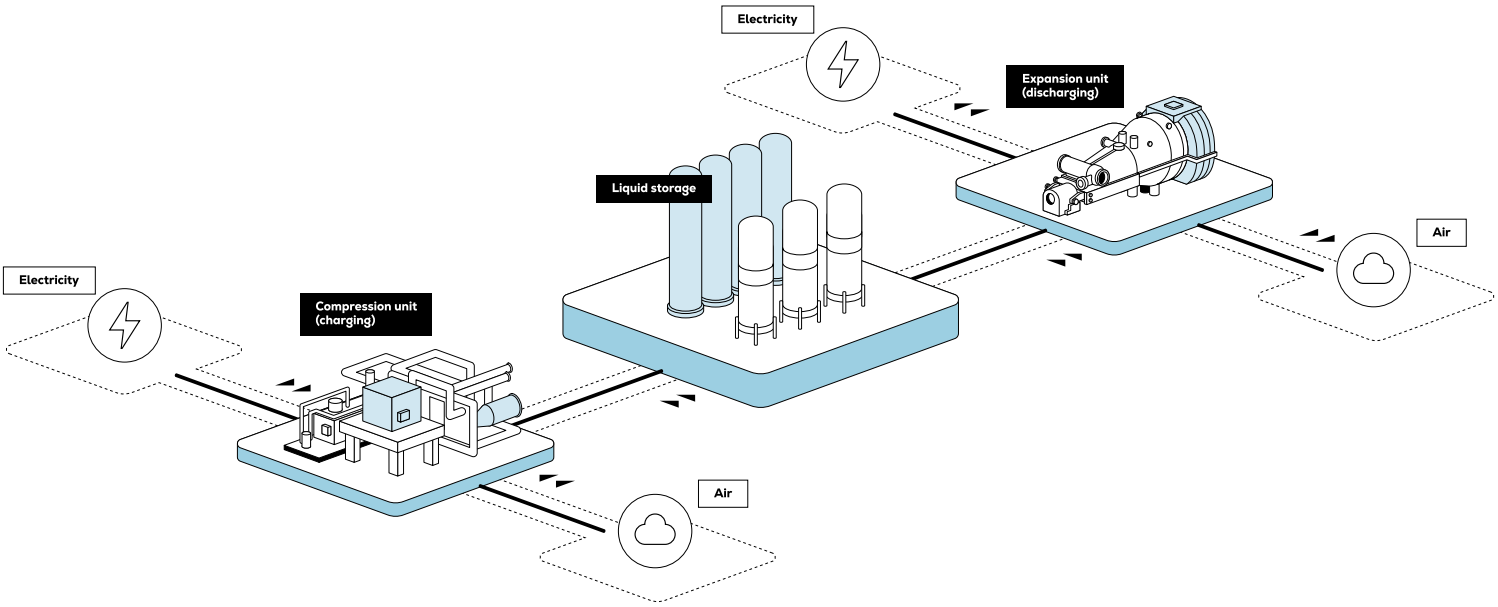
Liquid air energy storage

Energy
Industries

LAES



Everllence

Benefits at a glance

- High system efficiency enabled by Everllence turbomachinery
- Scalable and modular solutions for medium to very large systems
- Long life cycle with no degradation or toxic materials
- Zero-emission operation using only air as the storage medium
- Suitable for grid-scale renewable integration and industrial decarbonization

LAES

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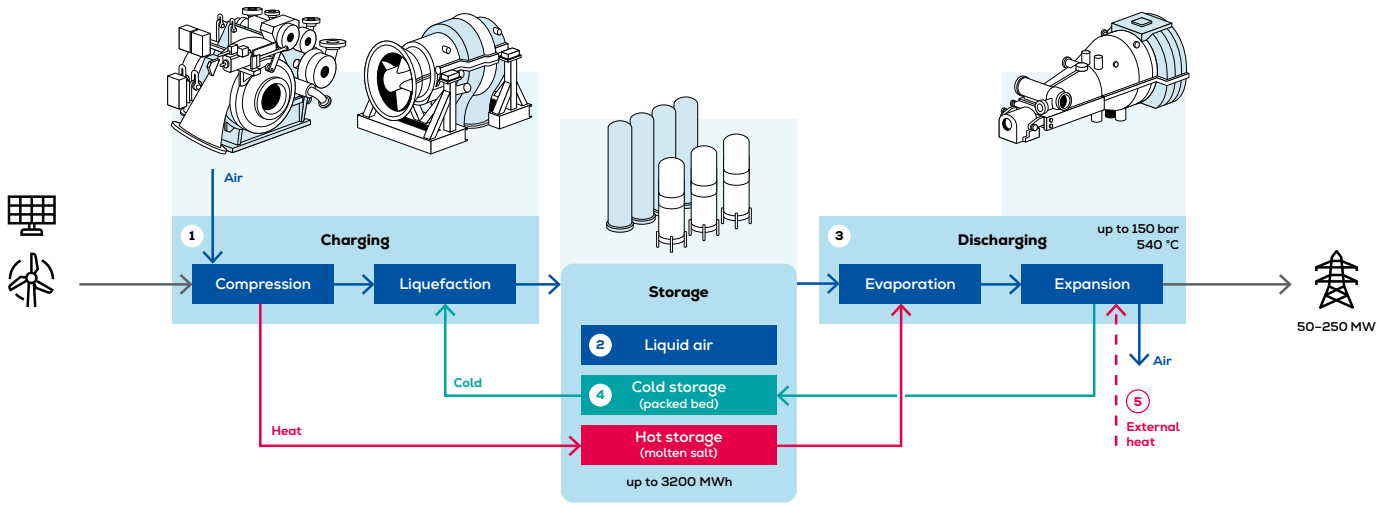

General

LAES is a cost-competitive, long-duration, and large-scale energy storage solution. It stores excess renewable energy as liquid air and releases it on demand – reliable, efficient, and free from geographical limits.

Technology

When renewable electricity is abundant, it powers an Everllence compressor that compresses air. The compressed air is cooled and liquefied, then stored in insulated cryogenic tanks. When electricity is needed, the liquid air is pumped to pressure, evaporated, and heated – forming high-pressure gas that drives an Everllence expander to generate power.

This process provides emission-free, flexible, and long-duration energy storage, bridging the gap between intermittent renewable supply and continuous demand. Typical round-trip efficiency ranges from 55–70 %, with discharge durations of up to 24 hours or more.

Cryogenic solutions

With decades of experience in cryogenic technologies, Everllence in Gothenburg provides the design of complete storage and vaporization systems, including cryogenic pumps for liquid air. From concept to commissioning, Everllence delivers with partners fully integrated cryogenic solutions for safe and reliable liquid air handling.

Future-ready energy storage

LAES systems are modular, emission-free, and easily scalable. They can be integrated with waste heat recovery or hydrogen systems to further increase overall efficiency – enabling a sustainable and adaptable pathway to a carbon-neutral energy future.

Why Everllence

With proven turbomachinery expertise and decades of engineering experience, Everllence delivers the core equipment for reliable, large-scale energy storage. Our compressors and expanders form the technological core of the LAES solution – delivering efficiency, flexibility, and reliability for tomorrow's carbon-neutral power systems.

Everllence turbomachinery for LAES

Compressors

Everllence is a leading manufacturer of air compressors with deep expertise in air separation and industrial applications. Our portfolio includes radial, integrally geared, and combined axial/radial compressors for large-scale systems – achieving suction flow rates up to 1.5 million m^3/h and discharge pressures up to 250 bar (3625 psi). With Everllence compressors, up to 45,000 metric tons of liquefied air per day can be produced efficiently and reliably.

Expanders

Everllence expanders and steam turbines serve as high-performance power recovery units for power generation and mechanical applications up to 180 MW. Their robust design withstands inlet temperatures up to 540 °C (1004 °F) and pressures up to 150 bar (2175 psi). We engineer single-stage and multistage axial or radial gear expanders to strike the optimal balance between efficiency, cost, and flexibility.

Contact

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