

# Finland battery control system

### Is Finland a good place to invest in battery energy storage?

In addition to that, Finland has a strong culture focusing on core business functions and there is always plenty of space for services. It is, however, noticeable that battery energy storage systems or services are demonstrated only by larger companies, which have got typically 30% investment support.

#### How many battery installations are there in Finland?

Today there are approximately 10 battery installations in Finland (see Table 1), which are providing services for different stakeholders in the energy value chain. First, the case studies are classified based on the framework presented above, and next, the main concerns raised in the interviews conducted are outlined.

#### Is Finland a smart grid market?

Finland is today one of the most advanced smart grid markets in the world, providing an ideal test bed for smart grid applications - including also battery energy storage systems and services.

#### Who owns battery energy storage systems?

The ownership of the storage systems and their place in the value chain is explained next. Today battery energy storage systems can be owned and operated by the Power Generation Company(PGC), the Retailer (acting typically also as Balance Responsible Company (BRC)), the Aggregator (AGG) and the Prosumer (PRO).

#### Are smart meter data regulated in Finland?

The regulatory framework in Finland is open to innovation, technology is progressing faster than regulation, and stakeholder discussions are taking place. At the same time, smart meters have been implemented for years already, and DSOs are capable of monitoring smart meter data on an hourly level.

### Is Finland a good market for storage as a service business?

The Finnish market has some specific characteristics that make it an interesting targetas a case study regarding storage as a service business. Finland is the first country in the world to have adopted smart electricity metering (hourly metering and remote reading) on a full scale.

Finland has many strengths to succeed in the battery sector and electrification. The cornerstones of the Battery Strategy include the availability of raw materials and the capability to process them, expertise in research and production of battery materials and recycling, and competence in electrification and digitalisation.

Lausanne - Alpiq expands its flexibility portfolio and acquires one of the largest battery energy storage systems (BESS) in Finland. The 30 MW large-scale battery from Merus Power, a leading Finnish technology company, ...



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The working group proposes seven objectives for the strategy period 2021-2025: growth and renewal of the battery and electrification cluster, growth of investments, promotion of competitiveness, increased international awareness of the strategy, responsibility, definition of key roles in the sector's new value chains, and promotion of ...

The Battery Strategy for Finland delivers a strong vision, clear targets and well-defined actions for Finland to succeed in this global race - building on its strengths in the upstream activities of the battery value chain, i.e. raw

Active harmonic filters are a versatile solution to deliver power factor improvement, voltage variation control, flicker mitigation and load balancing functionality. Most of the battery energy storage systems in Finland are today equipped with harmonic filters.

As Finland takes on more renewable energy sources to meet carbon neutrality goals by 2035, Sargent & Lundy is helping stabilize the country's grid by supporting the installation of additional battery energy storage systems.

Finland. Studies have shown that grid following (GFL) inverter-based resources (IBR) are not able to operate in stable manner when the share of the converters is increasing in the future. Solution for operating the inverters in stable manner is to use grid forming control. Grid forming IBRs are needed to compensate the reduction of

The largest battery energy storage system operating on Finnish electricity markets, delivered by Merus Power, has been completed and is now in market use. The energy storage facility, designed for Finnish cold and snowy conditions, is located in Lempäälä, Finland. It is part of a fund investment managed by Taaleri Energia.

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