FINLAND'S BATTERY STRATEGY 2030

Self-sufficiency for Europe, growth and jobs for Finland. Competitiveness, resilience and well-being created by a responsible battery value chain.

Finland's first National Battery Strategy, published in 2021, laid the foundation for developing the Finnish Battery Cluster and promoting investments in the sector. Since then, the operating environment has changed rapidly. Geopolitical tensions have grown, international competition for investments and critical materials has intensified, and Europe has an urgency to strengthen its industrial competitiveness, security of supply, security and strategic autonomy. The battery value chain matters more for the future of Finland and Europe today than it did when the first strategy was drafted.

At the same time, electrification is advancing at speed. Batteries are no longer merely energy storage solutions or clean transition technology; they are a key part of the transformation of transport, the energy system and industry, as well as of energy security, security of supply, defence and economic independence. Battery technologies have become one of the key enabling technologies for the society.

Finland has a great deal to gain from this transformation. We have a strong combination of critical minerals, metal refining and battery materials, circular economy, clean energy, industrial process expertise and high-level research and innovation capabilities. Finland also has strong expertise in the electrification of mobile machinery, energy systems, software and demanding battery applications, as well as in Arctic and dual-use solutions.

A strong starting position, however, is not enough. Finland's key challenge is to turn its expertise and the sustainable use of natural resources more quickly into investments, high value-added industrial production, commercial solutions, exports and international growth. This requires a competitive and predictable operating environment, smooth permitting, sufficient energy and grid capacity, skilled people and financing, as well as coherent national and European industrial policies.

The updated strategy focuses on the areas with the most expertise and opportunities

Finland should not try to compete in every part of the battery value chain. Resources must be directed to the areas where Finnish industry and expertise have the best opportunities to build sustainable international competitive advantage.

The strategy's vision for 2030 is that Finland is Europe's leading location for a sustainable, competitive and secure battery ecosystem that seizes the opportunities for growth, investment and security of supply offered by the transformation and electrification.

This strategy is the result of nation-wide cooperation. Experts from companies, universities, research institutes, ministries, other public sector organisations and regional development companies took part in the update, and the work was steered by the Board of Finnish Battery Industries. Warm thanks to all the experts who took part in the work, for their valuable time, insights and commitment to building a shared direction.

Helsinki, 10 November 2026

Finnish Battery Industries

10 Theses of the Battery Strategy

The 10 theses of the battery strategy capture Finland's strategic choices for turning the strengths of the battery value chain into growth, investment, exports and resilience.

1. **The battery value chain is a strategic opportunity for Finland's growth, competitiveness and clean transition**
   The battery value chain strengthens Finland's industrial base, exports, security of supply and European resilience, and enables the electrification of society and industry.

2. **Make Finland a competitive, predictable and legally certain operating environment for battery investments**
   Remove bottlenecks in permitting, infrastructure, regulation and other aspects of implementation, and accelerate the realisation of strategically important investments.

3. **Focus on where Finland can be the best in Europe**
   Build leadership especially in battery minerals and their refining, active materials, demanding electrification and energy solutions, circular economy, and Arctic and dual-use solutions.

4. **Increase domestic value creation across the battery value chain**
   Link mining, refining, recycling and battery materials production to high value added, investment, expertise and exports generated in Finland.

5. **RDI must lead to commercialisation, industrial scale and exports**
   Build a continuous path from research to piloting, demonstrations, commercialisation and industrial production. Education policy decisions must support this development, meaning that investment should be directed to education covering the entire value chain, from vocational training to university education.

6. **Commercial customer relationships are the measure of competitiveness**
   Finnish products, materials and solutions must become an important part of European value chains. Success is measured by commercial contracts, exports and new investments. Demanding customers are the best guarantee that Finnish battery expertise is world-class.

7. **Make electrification, energy storage and smart energy solutions a new export strength**
   Strengthen the electrification and system integration of mobile machinery, and grow business based on BESS, energy management and digital services. At the same time, energy storage strengthens the reliability of the power system and industry.

8. **Make responsibility, low carbon, traceability and circular economy a competitive advantage**
   Build Finland's mineral, materials and circular economy expertise into a whole where traceability, low carbon footprint and responsibility make Finnish solutions top class in the EU and on global markets.

9. **Make Finland a leading centre of expertise for Arctic and reliable dual-use battery systems**
   Leverage synergies between civilian and defence markets, as well as Finland's expertise in Arctic conditions, electrification and system integration, in applications of high value.

10. **The battery value chain is part of Finland's security of supply and strategic resilience**
    Identify and safeguard the battery mineral, materials and production capabilities critical to Finland, while strengthening Finland's role in securing Europe's supply of critical battery raw materials, materials and technologies.

Main Principles of the Strategy

Competitiveness is based on a predictable operating environment that encourages investment. Smooth and fast permitting, clear and consistent regulation and long-term industrial policy strengthen companies' operating conditions and Finland's attractiveness as a destination for battery investment.

Impact comes from directing resources to the measures and areas of the value chain where Finland has the best prerequisites for generating growth, investment and high value added. The aim is to strengthen existing competitive advantages and to build new expertise and business in fields where Finland has the opportunity to achieve a significant position.

Sustainability is the foundation of the Finnish battery sector's competitive advantage. It is built on responsible mineral production, resource-efficient processes, circular economy and the fulfilment of environmental and social responsibility throughout the value chain. Sustainability is seen both as the starting point for operations and as a driver of international competitiveness.

Resilience means the ability to identify and manage critical dependencies, secure the key supply and value chains of the battery sector, and maintain industrial capacity even in disruptions and crises. Strengthening domestic and European capabilities also supports security of supply and strategic capacity to act.

Internationality is a prerequisite for the growth of the Finnish battery cluster. Finland operates as part of global and European value chains, attracts international investment, companies and talent, and promotes access for Finnish expertise and solutions to international markets. Active EU and international advocacy also builds competitive operating conditions for the Finnish battery industry.

Vision 2030

Finland is Europe's leading hub for responsibly produced battery materials, next-generation battery technologies and high value-added battery industry, strengthening sustainable growth, competitiveness, security and strategic autonomy in Finland and in Europe.

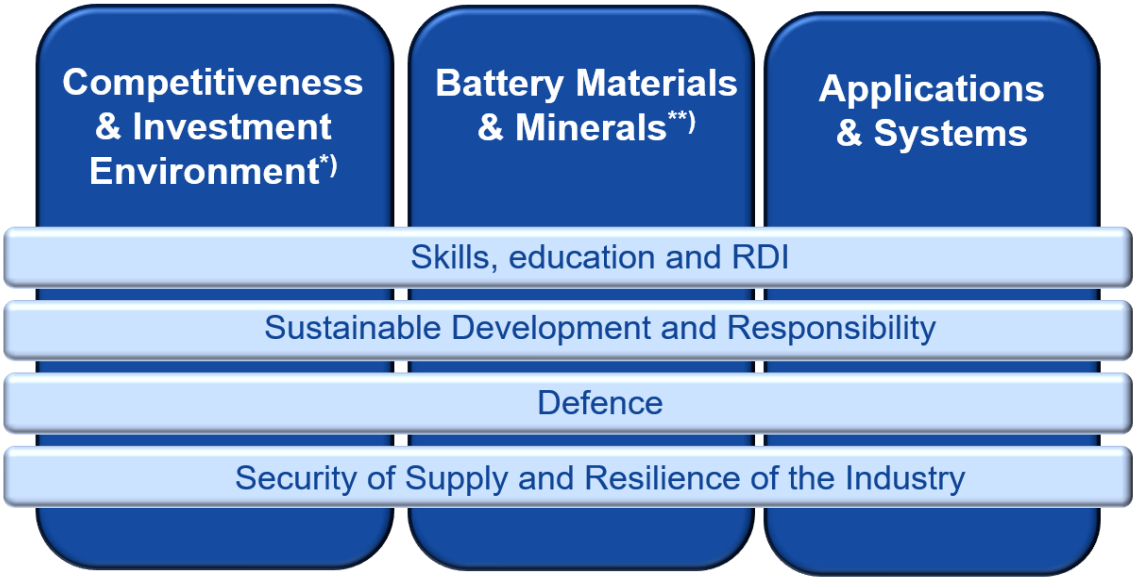
Mission 2030

Together, we are building a competitive Finnish battery cluster that provides Europe with critical materials, technologies, expertise and investment, and creates sustainable growth, well-being and strategic independence for Finland in a rapidly electrifying world.

Strategic message: Finland should not try to compete across the entire global battery chain. It should build its European leadership in those parts of the value chain where it has sustainable competitive advantage: battery materials, refining, circular economy, energy systems, Arctic and dual-use applications, and solutions that strengthen resilience.

Three Main Themes

The strategic themes of the battery strategy describe the key priorities for the competitiveness and value creation of the Finnish Battery Sector, and the cross-cutting themes linking them strengthen the operating conditions of the entire value chain. The aim is to view the battery ecosystem as a whole, from raw materials and materials to applications, circular economy and markets, while ensuring that expertise, responsibility, security and resilience support all strategic choices.



*) Including permitting, regulation and influencing EU policy
**) Including Circular Economy

Growth in the battery sector requires an operating environment that supports investments

Competitiveness and the operating environment form the foundation of the entire battery strategy. Without a competitive investment environment, other strategic goals such as value chain growth, new technologies, circular economy or exports cannot be fully achieved. **The aim is to create an operating environment in Finland where investments progress faster, regulation supports growth, financing is available and the policy is long-term and predictable.** EU regulation and European instruments should also be used actively to strengthen Finland's competitive edge.

Growth in the Finnish Battery Sector requires a competitive, predictable and investment-friendly operating environment**. Obstacles to prevent growth and investment must be removed, permitting streamlined, and taxation, national regulation and EU-level decisions must not weaken the international competitiveness of the Finnish value chain.**

Legislation must be clear and fit for purpose, so that the objectives are realised consistently in its application and in following legal proceedings. **The aim is a long-term and legally certain operating environment** that strengthens Finland's competitive position, reduces investment risk and enables sustainable ecosystem growth and new industrial value creation.

Strengthening and renewing the pCAM and Cathode Materials Pathway

Finland will strengthen its current pCAM and Cathode Materials capability, build a new growth pathway in anode materials, and combine primary and recycled materials into a single competitive value chain. The aim is high added value, material efficiency and technology-neutral expertise that strengthens Finland's competitiveness and Europe's material resilience.

Battery minerals, materials and circular economy form a strategic whole, in which Finland's mineral, metal, chemical and process expertise is combined with efficient material circulation and the production of high value-added battery materials. The theme builds on Finland's existing strengths and provides a credible basis both for renewing current industrial capabilities and for growing new business and investment. **The strategic starting point is to strengthen and renew the current pCAM and cathode materials pathway and to increase the value added generated in Finland. At the same time, the next direction for growth is anode materials.**

Primary and recycled raw materials are not considered separate chains, but as an integrated materials system. The aim is an industrial value chain in which primary and recycled feedstocks are refined into battery-grade products and returned to the same material supply chains. This strengthens material efficiency, domestic added value, material availability, security of supply and European resilience, and creates new material symbioses between recycling, refining and battery materials production.

In cell manufacturing, high-volume mass production of battery cells is not seen as Finland's primary strategic pathway. **However, Finland can develop battery materials and cell solutions requiring special properties and high performance, for example for demanding industrial, Arctic, security and dual-use applications, and, where necessary, manufacture such cells on a limited scale. The strategy does not rule out later investments related to cell manufacturing as technologies, markets and European value chains evolve.**

Towards higher value products, complete solutions and services

In the battery strategy, applications and systems form a bridge between battery technology, Finnish industrial expertise and growing electrification markets. The aim is to use batteries as part of broader solutions combining equipment, energy systems, power electronics, software, data, charging solutions and system integration. This way, the value creation of the Battery Cluster can be expanded from materials and individual technologies towards higher value products, complete solutions and services.

The 2021 national battery strategy already identified Finland's opportunities in electric mobile machinery, battery systems and system solutions for the electrification of transport. The strategy update expands this into a system-level competitive advantage. **Key application areas include, in particular, mobile machinery, microbatteries and printed energy solutions, smart energy storage and energy systems, and battery intelligence based on battery data, software and lifecycle management.** For mobile machinery, the aim is to combine machines, batteries, charging solutions, energy systems and digital services into competitive complete solutions. For energy storage, power electronics, energy management, software, cybersecurity, microgrids and energy system integration are identified as the basis of competitiveness.

Strategic core: Finland should shift the focus towards high value-added applications, system solutions and digital services by leveraging the areas of expertise in which Finland has a strong industrial and technological base. The key is to combine batteries, electrification, energy management, power electronics, software, data and system integration into competitive complete solutions, and to build references, demonstrations and commercialisation pathways around them. At the same time, expertise, RDI activities, international advocacy, and resilience and dual-use perspectives support the development of applications.

Cross-Cutting Themes

Skills, Education and RDI

Ensure the expertise required for the renewal of the Finnish Battery Sector and build a strong continuum from education and research to piloting, commercialisation and industrial scale. Target expertise and RDI investments at strategic strengths and turn research expertise into new technologies, business, investment and competitiveness. Education policy decisions must support this development, meaning that investment should be directed to education covering the entire value chain, from vocational training to university education.

Sustainable Development and Responsibility

Sustainable and responsible operations are the cornerstone of the Finnish Battery Value Chain and, at the same time, a competitive advantage. Finland's aim is to make the entire value chain low-carbon, resource-efficient, traceable and socially acceptable, reducing its own environmental footprint and increasing the positive handprint of Finnish battery and electrification solutions.

Defence Industry

One of the key objectives of the strategy is to strengthen Finland's ability to use battery technologies for defence and security needs by combining civilian and defence sector expertise, dual-use technologies and reliable domestic capabilities. The aim is to improve the technological reliability of defence while creating new innovation, growth and export opportunities for the Finnish battery industry.

Security of Supply and Industrial Resilience

Another key objective is to strengthen the ability of the Finnish Battery Ecosystem to operate during disruptions and in a changing operating environment by ensuring the availability of critical materials and batteries, domestic strategic capabilities, continuity of supply chains and the reliability of energy and battery systems. Security of supply and resilience are built into the competitiveness and strategic choices of the entire battery value chain.