

Battery Innovation System of European Union



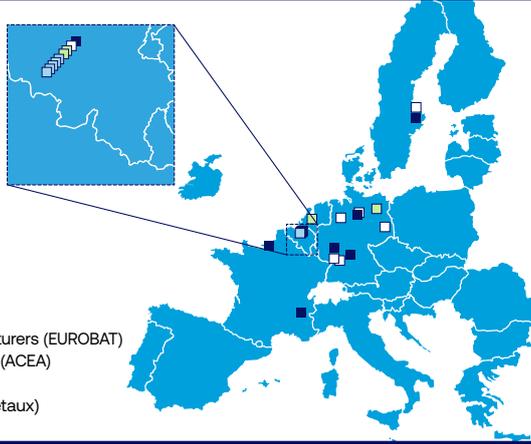
Main Players

POLITICAL ORGANISATIONS

- European Commission (EC)
- Batteries Europe
- Batteries European Partnership Association (BEPA)
- European Battery Alliance (EBA)
- IPCEI Batteries
- National governmental agencies

INDUSTRY ASSOCIATIONS

- European Portable Battery Association (EPBA)
- Association of European Industrial Battery Manufacturers (EUROBAT)
- European Automobile Manufacturer's Association (ACEA)
- RECHARGE
- European non-ferrous metals association (Eurometaux)



RESEARCH ORGANISATIONS

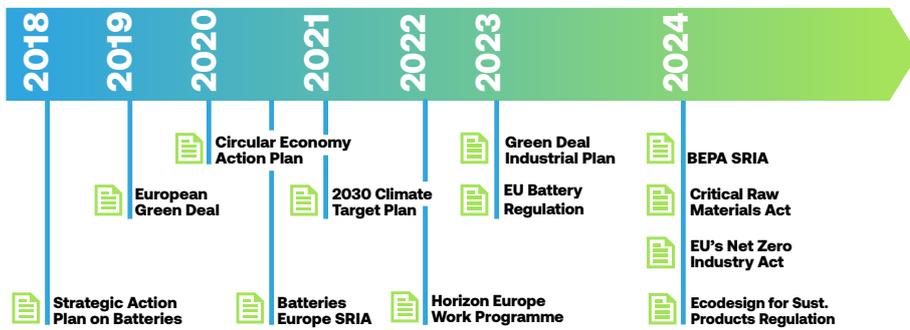
- LIPLANET
- Battery 2030+
- Fraunhofer Research Institution Production (FFB)
- European Energy Research Alliance (EERA)
- CELEST
- ProZell
- InZePro
- greenBatt
- ALBATTIS

COMPANIES

- ACC (Batteries)
- BASF (Materials)
- Northvolt (Batteries)
- PowerCo (Batteries)
- Umicore (Materials, Recycling)
- Varta (Batteries)
- Verkor (Batteries)

Further detailed maps [here](#)

Strategic Documents



Policy Goals

- 2027**
 - Battery passport:** Digital product passport mandatory for a range of batteries including EVs.
- 2030**
 - GHG emissions:** Reduction by 55% compared to 1990 levels, which will require significant decarbonisation efforts across all sectors, including the battery industry
 - Domestic production:** At least 40% (90% for batteries) of the demand in clean technologies should come from European production
 - Circularity:** Boost recycling of batteries and recovery of valuable materials
 - Sustainability:** Establish sustainable and transparent requirements for batteries (carbon footprint, ethical sourcing of raw materials, security of supply)
 - EU consumption:** 10% of extraction and 40% of processing should take place in the EU. 15% of the raw materials are to be obtained from recycling. No more than 65% of raw materials may be imported from a single third country
 - Zero-emission:** Target for new city busses
 - Recycling targets:** Materials recovered from spent batteries: 50% by 2027 and 80% by 2031 for lithium and 90% by 2027 and 95% by 2031 for cobalt, copper, lead and nickel. Proportion of recovered materials in new batteries: 16 % for cobalt, 85 % for lead and 6% each for lithium and nickel from 2031; 26% for cobalt, 12% for lithium and 15% for nickel from 2036.
- 2035**
 - Zero-emission:** Target for all new cars and vans.
- 2050**
 - Carbon neutrality:** Including measures to support the development of sustainable and resource-efficient battery technologies.

Region Specific Information

In the European Union, the establishment of competitive and domestic battery value chain is essential for a fast transition towards climate neutrality. Europe focuses on producing "green" batteries following sustainability criteria such as climate protection, circular economy, raw material governance and economic efficiency. By introducing a battery pass, transparency is provided to create awareness for sustainable as well as ethical factors which are guaranteed by due diligence obligations for economic operators. To establish a resilient battery value chain, the European Union aims

to build up a local battery production and material sourcing along with strong international trading partnerships. Moreover, diversity, pilot lines and national funding are characteristic for the European battery ecosystem.

Research Priorities

- + Lithium-ion batteries + innovative and enhanced batteries for EVs from material design to battery system design + stationary energy storage + higher energy materials + high-performance batteries + materials and production technology + reduction of the amount of critical raw materials needed + reduction of GHG during the production process + recycling technology + digital twins + cell design + life cycle assessment

Funding Instruments

TIME	FUND	FOCUS	BUDGET
2019–2031	Two Battery IPCEIs: Important Projects of Common European Interest	Two European-wide R&D initiatives that aim to build up a sustainable and competitive battery value chain in Europe. 12 EU member states provide funding for more than 70 companies in 68 subprojects aiming for research and development across the full battery value chain.	€ 6.1 billion
2021–2027	Horizon Europe Programme and Co-Programmed Partnership Batt4EU	The aim of BATT4EU is to establish a European battery value chain by 2030. The objectives are to increase battery energy and power densities and charging rates, improve cycle lifetime, reduce battery costs, implement best-in-class operations for manufacturing and recycling, and reduce the carbon footprint. Battery research is also funded through other calls, such as those launched by the ERC and the EIC.	€ 95.5 billion (€ 925 million for BATT4EU)
2023–2025	TCTF: Temporary Crisis Transition Framework	Allows EU member states through lower regulations to implement support measures against energy crisis due to war in Ukraine for sectors, which are key for the transition to net-zero economy.	transitional measures implemented on member state level
2020–2030	Innovation Fund	The Innovation Fund aims to help businesses invest in clean energy and industry to boost economic growth, create local future-proof jobs and reinforce European technological leadership on a global scale.	€ 4.8 billion (not limited to batteries + an additional dedicated instrument for the battery value chain mounting up to €3 billion for three years announced in Dec. 2023)

