

# Battery Innovation System of European Union



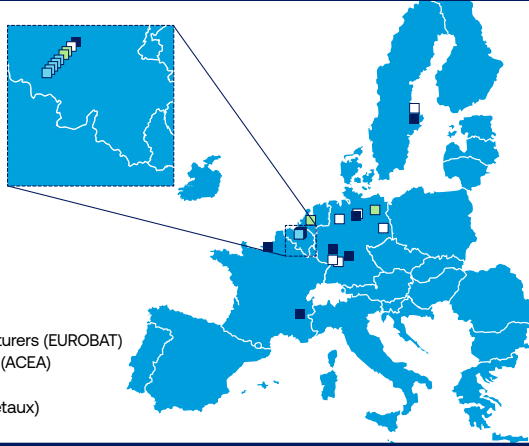
## Main Players

### 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

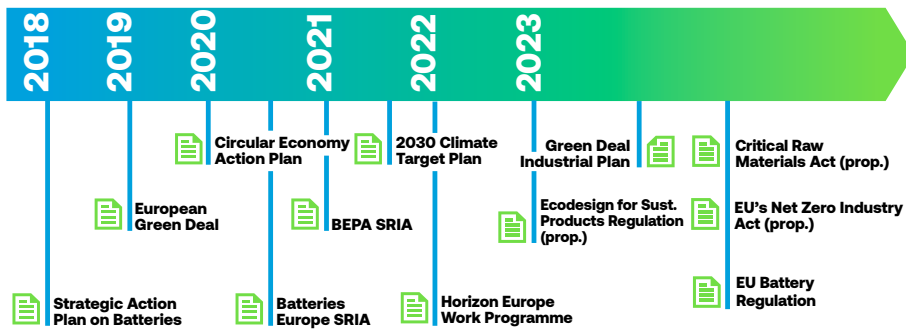
- LIPLANET
- Battery 2030+
- Fraunhofer Research Institution Production (FFB)
- European Energy Research Alliance (EERA)
- CELEST
- ProZell
- InZePro
- greenBatt
- ALBATTs

### COMPANIES

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

Further detailed maps [here](#)

## Strategic Documents



## Policy Goals

### 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	IPCEI: Important Projects of Common European Interest	A European-wide initiative that aims to build up a sustainable and competitive battery value chain in Europe. 12 EU member states provide funding for more than 50 companies for first industrial deployment of innovative battery technologies.	€ 3.2 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	Support measures in sectors which are key for the transition for the net-zero economy. Enabling the investment support for the manufacturing of batteries, solar panels, wind turbines, heat-pumps, electrolysers as well as financial support to build up the recycling industry for critical raw materials.	€ 1.287 billion (transition measures)
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. The additional €3 billion for batteries will cover the mid part of the value chain (cell production), and there is an expectation of trickle-down economics to initiate much needed integration. A directed spill-over will be more incentivizing for the private investor as the case for validity of return in putting money in upstream or downstream would be way easier to prove.	€ 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)

