

Powering an innovative battery value chain in Europe



A competitive, 'made in Europe' battery economy will play a central role in powering Europe's energy transformation. It is urgently required. As we electrify and decarbonize our economy, Europe's share of battery cell demand is expected to reach a third of total global capacity. Ensuring a supply of safe, innovative and reliable rechargeable batteries to meet the rising demand is a priority.



Europe's battery transformation:

Energy transformation depends on the ability to expand renewable energy capacity. But new energy sources are only one half of the equation. To decarbonize and electrify, Europe must also engineer efficient, commercially viable solutions for storing energy, too.

No single battery technology provides the solution to Europe's future energy storage requirements. The key to success is to nurture a diverse range of technologies – each with different strengths and capabilities. In Europe advanced lead batteries are used across a diverse range of industries and are an indispensable part of our economic and social infrastructure.

Lead batteries are a key part of the storage mix and are key to maintaining and growing a competitive and sustainable battery manufacturing industry in Europe. They are responsible for more than three quarters of

existing rechargeable energy storage worldwide, while advanced lead batteries are increasingly being used to store and manage renewable energy supplies, feeding micro grids and national grids to facilitate the smooth supply of power to homes and businesses.

Their unique chemistry means lead batteries are perfectly matched to the task of storing the energy created by renewable sources such as wind and solar, while more day-to-day applications are geared towards securing emergency back-up in hospitals, stock markets, mobile networks and vast data centres. It means that wherever and whenever the power goes out, lead ensures critical services keep running.

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Clean energy:

Lead's second important advantage is as a stepping stone, facilitating the smooth transition to a clean energy economy. As renewable energy sources grow their share of total energy consumption, lead batteries will be one of the mix of solutions employed to enable efficiency and performance, ensuring grids can squeeze more power from renewable sources. A large proportion of solar and wind facilities, for example, use batteries to regulate variability, storing excess energy when demand is low and releasing it when demand is high.

Security of supply is a key ingredient of Europe's transition. It ensures companies across the energy supply chain can plan effectively and are incentivized to boost capacity. The best way to secure supply is to manufacture from waste. More than 99 percent of lead batteries are recycled, making them the most recycled consumer product in the world. Indeed, the lead battery industry provides one of the most successful examples of a full circular economy. From design, to manufacture, transport and recycling, lead batteries have an infinite life cycle.

The closed loop recycling process for lead batteries is already one of Europe's success stories for the circular economy with new batteries containing up to 85% recycled content, sourced from European scrap. The standard design of lead batteries, coupled with a recycling process that is driven by the economic value of the recovered materials, means that they are well integrated into the circular economy and already have many of the 'green battery' attributes that the European Battery Alliance is calling for. As the EU's Battery Action Plan notes, "a sustainable battery value chain should be well-integrated into the circular economy".

While lead batteries rely on sustainable manufacturing processes, they also help improve sustainability in the applications that rely on them, such as reducing greenhouse gas emissions in the millions of vehicles with start-stop engines, as well as cutting overall fuel consumption by up to 10 percent.



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Innovation

As renewable energy from wind and solar accelerate there will be increasing demand for a range of tried and tested battery technologies that are safe, reliable and cost effective. Like other battery technologies, lead batteries require further investment to reach their full potential. Governments and businesses in the US and in China recognize this potential, and are investing in advanced lead technologies, acknowledging the strategic and economic benefit of balancing support for a range of technologies and solutions that can support clean energy transformation.

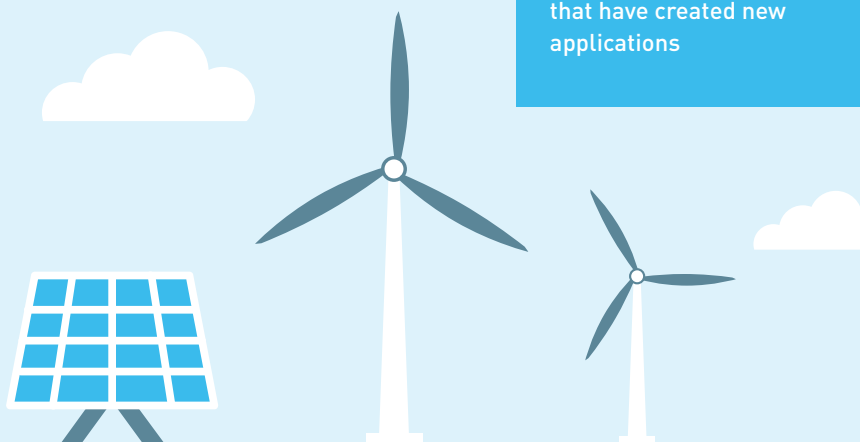
With the right incentive and investment programme, lead battery performance could be significantly improved in the next few years, providing much-needed capacity and scale to the EU's energy transformation. The lead battery industry is investing millions in research and innovation that will enhance capacity and performance. Research driven by partnerships between industry and academia is yielding new findings that have created new applications in storage and transportation, and further improved the life, performance and reliability of lead batteries.

But more must be done. Increased funds must be found, for all battery technologies. The expected growth in demand for battery energy storage will make it impossible for a single battery technology to provide the capacity needed to achieve Europe's clean energy targets. We must create a level playing field that ensures a range of solutions have a chance to reach their full potential. Advanced lead batteries, as well as lithium and others, will be required at scale to support Europe's transformation to a decarbonized economy.



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Regulation is a critical balance of controls and incentives. The EU's Action Plan for Batteries states the desire to ensure EU policy coherently addresses "human, health and environmental concerns" while also supporting innovation in battery technologies.

The future of energy storage in Europe depends on getting that balance right. This is why adding lead compounds to the REACH authorization list makes little sense. All batteries placed on the market contain or use hazardous substances for their manufacture. The issue is not lead's toxicity, but rather the risk of exposure. Lead batteries are sealed units that present no danger to consumers and are recycled in a closed loop limiting any opportunity for releases of lead to the environment. Moreover, the manufacturing process is already covered by an extensive framework of existing EU regulation, and the lead battery value chain has made important strides to control and mitigate the risk of exposure, which in many cases go beyond existing regulation.

The question, therefore, concerns the impact of additional legislation. Is REACH authorisation necessary, or will it ultimately impede innovation, and disrupt Europe's much-needed transformation to a decarbonized economy? The concern is that additional regulation will impede and disrupt rather than protect. Indeed, the impact of restricting use of strategically important materials by European producers through REACH authorization, which would not apply to producers of imported batteries, will only serve to work against a competitive, 'made in Europe' battery economy and ultimately will signal the end for lead batteries. As the EU Action Plan acknowledges, a wide range of battery technologies will be needed to decarbonize the economy and power

electrification. Lead batteries are a key part of the battery portfolio, storing energy in back-up power systems and enabling adoption of lower CO2 emissions from road transport today, and supporting the renewable, distributed energy grids of tomorrow. Limiting the use of lead substances for European battery manufacturing will make it harder for Europe to progress and make the outcome of energy transition more uncertain.

The EC's plan to create a competitive and sustainable battery manufacturing industry in Europe clashes with the move to add lead compounds to the REACH authorisation list, especially given the existing framework of EU legislation that currently governs use of lead and lead compounds. To move forward, we need a joined-up plan that incentivises the creation of a wide portfolio of battery solutions. Like all other technologies, lead requires further investment to reach its full potential. A REACH authorization listing signals to potential investors that lead batteries cannot be a viable long-term solution, depriving the European economy of R&D funding for a pivotal technology.

We believe the EC must work with industry to find a more proportionate way of managing any residual risks resulting from use of lead compounds and lead metal in battery technologies.

Ultimately, there are no substitutes to lead compound use in the manufacturing of a lead battery so REACH authorization signals that the technology itself should be substituted. The smart solution for the EU is to find a more proportionate way of managing any residual risks to human health and the environment that do not irreversibly damage Europe's battery value chains.

