

# Lead batteries are key to Europe's Clean Energy transition

The European Commission has set an ambitious range of targets for increased deployment of renewable energy and increased energy efficiency as part of its drive towards a low carbon future, through policy initiatives such as the Clean Energy for all Europeans package.

The efforts to meet these targets will make clear the critical importance of battery energy storage and in turn trigger a massive increase in demand for battery technologies. Predictions suggest that global demand for electricity storage from stationary and mobile applications will triple from an estimated **4.67 terawatt-hours in 2017 to over 15 terawatt-hours by 2030<sup>1</sup>**.

A range of technologies will be required to meet this demand and, while lithium batteries will be a key player, the only other technology with the scale and capability to meet this vast unmet need in energy storage is the lead battery.

The increased deployment of lead batteries in energy storage applications show the critical role of this battery technology in achieving a renewable energy future as well as improving energy efficiency in Europe.



## The policy context

The European Commission adopted a **strategic, long-term vision**<sup>10</sup> for a prosperous, modern, competitive and climate-neutral economy by 2050. This key objective has been developed into the EU's Clean Energy for all Europeans package, which sets two new targets for the EU for 2030:

- 1: a binding **renewable energy target** of at least 32%, and
- 2: an **energy efficiency target** of at least 32.5% at EU level



## How lead batteries support the EU's Clean Energy for all Europeans package

A significant increase in battery energy storage will be required to meet the ambitious goals set by the Clean Energy for all Europeans package - both in terms of renewable energy and energy efficiency. This increased demand cannot be met by one technology alone.

By balancing power grids and saving surplus energy, battery energy storage represents a reliable means of improving energy efficiency and integrating more renewable energy sources into electricity systems. It also helps enhance European energy security and the creation of a well-functioning internal market with lower prices for consumers.







Lead batteries are being increasingly deployed both globally and in Europe in a range of energy storage applications, including restoring the balance between supply and demand in the energy grid and storage until a later time when power prices or demand is lower.

These systems demonstrate the performance benefits of lead batteries, but also highlight the further benefits of lead batteries in terms of affordability, sustainability, reliability and safety.

Lead batteries have shown significant increase in performance, in some cases demonstrating a calendar life of 15 years, with a best-in-class cycle life of up to 5000 cycles-crucial for renewable energy storage applications.<sup>2</sup>

Lead batteries also have a very low battery system cost-with the average lead battery costing in the range of **€130-180 kWh**.<sup>3</sup>

The lead battery already sets the standard for others to follow in terms in sustainability. Thanks to its long-established collection and recycling scheme, **over 99%** of lead batteries are collected and recycled at end of life - the highest of all battery technologies.<sup>4</sup>

Finally, lead batteries have proven reliability and unrivalled safety, developed through over 160 years of use in applications ranging from Uninterrupted Power Supply (UPS), to telecoms, to automotive and motive power. This means that lead batteries require significantly less safety systems to be built into renewable energy storage design, reducing the costs and complexity of the set up.



The industry is investing significantly into research to make lead battery performance and lifetime up to 5 times better.<sup>5</sup>



Lead batteries also have a very low battery system cost-with the average lead battery costing in the range of **€130-180 kWh**.<sup>6</sup>



**99%** of lead batteries are collected and recycled at end-of-life; they have lowest environmental impact of all battery technologies.<sup>7</sup>



Lead batteries represent over 70% of the rechargeable battery market.<sup>8</sup>



90% of emergency power sources and telecoms use lead batteries.<sup>9</sup>

#### References

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