

New analysis reveals growing commercial potential for innovative long-duration energy storage solutions

BRUSSELS, BELGIUM, June 15, 2026 /EINPresswire.com/ -- Innovative Long-Duration Energy Storage (LDES) technologies are set to become an increasingly viable flexibility option in several European markets, according to a [new Eurelectric-AFRY report](#) launched today. The analysis finds that each GW of LDES could generate €150-250 million in annual variable operating cost savings at system level. These figures point to a strengthened business case for new storage technologies that can reduce renewable energy curtailment, ease network congestion and provide long-term flexibility for a decarbonised power system.

As renewable generation expands and electricity demand patterns evolve, Europe's power system requires increasing levels of flexibility for long-term periods. Large volumes of wind and solar generation in spring and summer can create periods of surplus renewable electricity, while rising winter demand increases the need for electricity right when renewable output might be lower.

While pumped-storage hydropower plants (PSH) currently represent Europe's backbone for long-term flexibility needs, the report's [detailed market analysis](#) shows that innovative Long-Duration Energy Storage (LDES) solutions are emerging as scalable options. Technologies such as iron-air batteries, compressed air (CAES) and liquid air (LAES) storage can help balance the system over timescales exceeding eight hours, making them particularly suited to managing longer-duration flexibility needs.

The report finds that the value of flexibility is increasing across European power markets. In wind-rich Germany and Great Britain, some storage technologies with durations exceeding 24 hours are set reach commercial viability after 2040, while sunny Spain and Portugal show particularly strong prospects for storage technologies with durations between 8 and 12 hours. These trends suggest that a business case is beginning to emerge for a range of innovative LDES solutions.

However, investment conditions for LDES remain uncertain in some markets. High upfront costs and insufficient revenues from existing energy and system service markets can make projects difficult to finance. This is particularly the case for Finland, where abundant pumped-storage hydropower and relatively low price volatility limit revenue opportunities for new LDES assets.

“Europe's energy transition needs technologies that can cover the increasing need for flexibility in the power system. It is encouraging that a business case is beginning to emerge for innovative long-duration energy storage with substantial system benefits: less curtailment, lower operating costs, reduced congestion and greater security of supply”, said Kristian Ruby, Secretary General of Eurelectric.

The value of flexibility is already creating tangible opportunities for LDES technologies. The [report shows](#) that LDES can substantially reduce renewable curtailment, particularly in regions facing network congestion. In Germany, where much of the wind generation is located in the north while demand is concentrated in the south, LDES can absorb excess renewable electricity during periods of congestion and inject it back into the grid when renewable output is lower. Across the countries analysed, each MW of installed LDES can avoid between roughly 2.2 and 4.5 MWh of curtailed renewable generation per year, with the highest benefits observed in Spain and Portugal.

With renewable generation expected to continue growing rapidly across Europe, the value of long-duration flexibility is set to increase. As adoption will lower costs and market frameworks evolve, innovative storage technologies are well positioned to become a cornerstone of Europe's decarbonised electricity system, helping deliver a secure, affordable and resilient power system while unlocking greater value from renewable generation.

ENDS

Note to Editors:

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