

# An intelligent battery for industrial production

December 29 2015

---

Energy consumption can be one of the most critical cost factors in manufacturing, especially for processes requiring a continuous and intensive use of energy. IK4-IKERLAN, a Spanish technology centre based in the Basque Country, is busy engineering integrated tools for battery packs used in industry with innovative energy efficiency features. These tools can contribute to control strategies aimed at providing energy when it is most needed, in step with market price peaks.

The principle is simple. "Battery-based electric energy storage, or ESS, is a key feature in helping to integrate renewables into productive processes," explains Bakartxo Egilegor, a specialist in thermal processes. "The problem we wanted to tackle was the intrinsic variability of renewable sources and the need to adapt [energy consumption](#) through intelligent shifts, reducing consumption when energy is at a higher price and thus offering a backup service to part of the factory power supply. This is why we talk of optimised control energy, which if implemented on a large scale, may offer significant reductions in costs."

Researchers therefore concentrated on delivering a battery pack sizing tool to optimise the up-front cost of the electrical storage system. "To develop it, several variables had to be taken into account, such as the application power profiles, the energy management strategy used by the factory, the battery performance and also the ageing of the battery itself, for which specific models have been produced. In the end, the tool performs an economic profitability study of the system, and also

considers application and cost aspects, as these are important constraints for the sizing of the battery pack," says Egilegor. A simplified version of the sizing tool is being integrated into a more complex software tool engineered by Irish company IES in the REEMAIN project.

Furthermore, IK4-Ikerlan has also designed and developed an innovative compact and scalable [battery pack](#) system based on lithium ion technology, which operates under thermal and energy management systems designed to ensure its safe operation and best performance. Egilegor says, "The management systems have been developed while bearing in mind that the solution should be scalable to applications with higher [energy](#) demand. For example, the thermal management system is able to keep cells in the range of 20°C to 30°C to maximise their lifetime in environmental temperatures between -15°C and 45°C."

Provided by Youris.com

Citation: An intelligent battery for industrial production (2015, December 29) retrieved 25 April 2024 from <https://phys.org/news/2015-12-intelligent-battery-industrial-production.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.