

# Electricity management in the production of lead-acid batteries: the industrial case of a production plant in Colombia

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## Abstract

Electricity stands as the main energy used for lead-acid battery (LAB) manufacturing. This study introduces an energy management methodology to address the electricity consumption in lead-acid battery plants, improving efficiency standards. The “equivalent battery production” is introduced to define the energy performance criteria to be met in the different production sections of the battery plant. The methodology combines the guidelines of the ISO 50001 standard with the energy management framework for manufacturing plants. The result is a structured approach for detecting inefficiencies and pinpointing their sources. The management methodology was implemented during 2016. In the formation area 222 MWh were saved during 2016. This saving accounts for 3.9% less electricity than forecasted by the energy baseline of the area. Additionally, the emission of some 40 tCO<sub>2</sub>.eq. associated with the generation of the electricity production were saved. Moreover, at plant level 424 MWh were saved, which account for 3.6% less electricity than forecasted by the energy baseline of the plant. In total, around 76 tCO<sub>2</sub>.eq. were saved as a result of the electricity savings in the plant.

**Keywords:** Lead-acid battery, energy efficiency, energy management; battery production