

Modeling the capacity of a lead-acid battery

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Abstract Taking into account the complexity of the processes produced into a lead-acid battery during charging and discharging, developing of a mathematical model is necessary to predict the battery behaviour during operation as energy storage unit in different systems. Battery capacity, one of the important battery parameters, varies according to battery characteristics and operating conditions. Based on experimental results, a new model for the lead-acid battery capacity was developed to predict battery capacity variation during operation in renewable energy systems. The non-linear regression technique was used to determine the value of the model coefficients. The accuracy of the proposed model was evaluated using statistical parameters.

Keywords: Lead-acid cell, modelling, capacity, renewable energy systems.
