

Neural network–Monte carlo method for PVE Supply & Electricity Demand Forecast & Storage System Sizing

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Depletion of fossil fuels and global climate change accelerate the use of renewable energy and locally distributed resources using smart grid system. With increasing electricity demand with large deviation and grid stability problem also get more attention.

The first key issue of the methodology is to predict the energy generation output of the renewable energies based on the variables detectable previously. In addition to this, electricity demand also should be forecasted in order for main grid electricity transmission or off-the-grid system application.

As an alternative we investigated the photovoltaic electricity. Based on the actual generation output, neural network time series analysis methods is used to model and forecast the photovoltaic electricity generation and electricity demand, and using the neural network time series model and monte-carlo method, we could get the electricity storage system size necessary for off-the-grid stable operation without electricity depletion.