Renewable sources and short-to mid-term electricity price forecasting

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Abstract

This study examines short-to-mid-term point forecasting of daily electricity prices, with particular focus on the role of renewable sources. Using data from the market zone corresponding to the northern region of Italy, we develop time series models with and without exogenous variables. The output highlights the importance of load, import price and natural gas price as influential factors in forecasting electricity price.

Also, it supports the modest predictive influence of solar and wind generations, even considering their small contribution to the energy mix in northern Italy. However, hydropower generation indicates no predictive power for daily electricity price forecasting. These outputs remain consistent whether using actual or forecasted exogenous variables. These findings provide insight into potential outcomes if the contribution of renewable sources to the energy mix continues to grow.