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**Abstract:** This paper presents an artificial neural network approach for short-term wind power forecasting in Portugal. The increased integration of wind power into the electric grid, as nowadays occurs in Portugal, poses new challenges due to its intermittency and volatility. Hence, good forecasting tools play a key role in tackling these challenges. The accuracy of the wind power forecasting attained with the proposed approach is evaluated against persistence and ARIMA approaches, reporting the numerical results from a real-world case study.

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