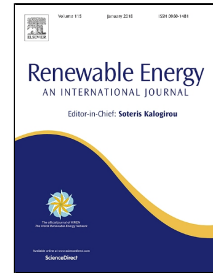


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Energy management supporting high penetration of solar photovoltaic generation for smart grid using solar forecasts and pumped hydro storage system

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Highlights:

1. In this paper a novel approach of energy management system for a smart grid environment has been developed.
2. 15 minutes ahead short term solar energy forecasting using hybrid model consisting of generalized neural network and wavelet transform has been performed.
3. The performance of the developed forecasting model is evaluated on the basis of root mean square error (RMSE) and mean absolute error (MAE).
4. On the basis of forecasted data, the pumped hydro storage system is utilized to fulfill the grid requirements.
5. In order to get better accuracy in results a demand response program has been also integrated with the developed system and its adequacy analysis also performed under different consumer flexibility scenarios.

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