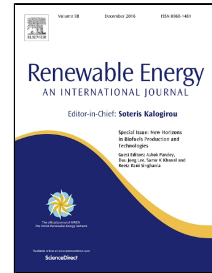


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Opportunistic maintenance for wind turbines considering imperfect, reliability-based maintenance

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In this paper, a two-level maintenance threshold (the preventive maintenance threshold and corrective maintenance threshold) strategy for wind farms is proposed considering the opportunistic maintenance and imperfect maintenance based on reliability. The simulation results validate the economic advantage of an opportunistic maintenance strategy, and examples are used to illustrate the strong positive correlation between savings and fixed downtime costs, and the negative influence of preventive replacement cost on economic benefit. The simulation analysis also provides the optimal opportunistic maintenance reliability threshold using the fruit fly optimization algorithm to provide guidance for the actual operation and maintenance of wind farms.

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