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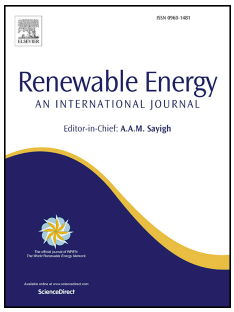


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# Energy Conservation, Environmental and Economic Value of the Wind Power Priority Dispatch in China

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**Abstract**: In recent years, the annual curtailment ratio of wind power in China has been around 15%. Although the priority dispatch policy for wind power has been put in place in the country, it is not well implemented. One of the reasons for this is that wind power is viewed by some power system operators as "garbage power" due to its inherent intermittency nature. The improvement of social awareness of the value of wind power deployment is crucial for the effective implementation of the priority dispatch policy. In this paper, we analyze the impact of the priority dispatch of wind power on energy conservation and environmental improvement, and then compare the generation cost between wind power and coal-fired power while considering environmental externalities. We conclude that the energy intensity in the system decreases as the proportion of wind power generation increases, and the energy intensity is minimized when the proportion reaches 15%-20% provided a small amount of wind power curtailment is allowed. Meanwhile, we confirm that the wind power priority dispatch has significant positive impacts on environmental improvement. Further, we find that wind power generation cost is very close to coal-fired power cost when environmental cost is taken into account.

**Keywords**: Wind power priority dispatch; Environmental value; Energy conservation; Economic cost; China

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