

Influence of Wind Power on Hourly Electricity Prices and Noise Levels for Ontario, Canada

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ABSTRACT

During the last thirty years, security of energy supply and environmental issues has sparked the interest for wind energy applications. In this context, the first part of the paper traces the long and difficult steps of wind energy developments, highlighting the prospects and main challenges of building large wind turbines towards the target of 1000GW of wind power in 2030. Using 2010-2012 hourly data from Ontario (Canada), the second part establishes models analyzing the impacts of wind production on electricity price and GHG emissions. Finally, the graphs in the third part show that even though noise generated by one wind turbine is low, even below the background noise level produced in a home or office, when wind blades keep working, the total hourly noise level in one wind farm is huge, it can be 80 times of the noise level of a refrigerator or 40 times of a vacuum cleaner. This indicates the oppositions to wind energy are reasonable.