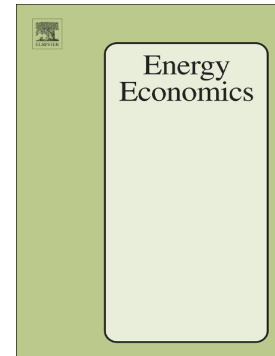


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Counterfactual comparisons of investment options for wind power and agricultural production in the United States: Lessons from northern Ohio

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**Abstract**

We analyze potential efficiency gains in wind power projects by comparing counterfactual investment decisions in two different scenarios under a real options framework. The first scenario is a standard wind power investment, where the investor rents the land from local farms. In the second scenario, the wind power investor buys the land and commercializes both electricity and crop production, thus shortening the revenue risk through the diversification. Both scenarios have a waiting option, with the wholesale prices leading the installation decision. We model the electricity price as a mean reverting process with jumps and with different jumping probabilities for the different seasons of the year. Corn prices follow a mean reverting process. The waiting flexibility was modeled as a bundle of European options. The results indicate that the waiting option is exercised in 100% of our simulations in both scenarios, suggesting the still important role of government policies to stimulate wind power. More importantly, in more than 90% of the simulations, the second scenario brought value to the investment. Furthermore, net present values are more sensitive to reductions in capital costs than electricity prices. These

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