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Q & A

Could Wind Farms Affect Weather Systems?

By [C. CLAIBORNE RAY](#)

Q. Could a plan being explored to use wind to produce a third of the power for New York City affect weather systems?

A. The usual objections raised to wind farming involve aesthetic issues, expense, noise and fears of danger to wildlife, and the issue of weather impact from wind farming has not been conclusively studied.

There has been at least one preliminary study of wind farming that suggested [the possibility of an adverse effect on local weather systems](#) from a large wind farm with many rotors in one area. But the researchers also suggested that potential problems could be ameliorated by redesigning the rotors to produce less turbulence.

The study, published in October 2004 in The Journal of Geophysical Research, used a hypothetical model of a wind farm much larger than any that had been built: 10,000 turbines, with rotor blades 165 feet long, in a 60-by-60-mile grid in north-central Oklahoma.

Dr. Somnath Baidya Roy, the lead author, then at Princeton, said the impact would come not so much from the rotor blades' slowing down the air but from atmospheric mixing in the wake of the blades. The mixing of layers of air would create warmer, drier conditions at the surface, the study suggested.

A nighttime stream of fast-moving air in the Great Plains separates cool, moist air near the ground from drier, warmer air above. The simulation found that the turbines would catch this nocturnal jet, with ensuing turbulence and vertical mixing. When the upper air mass reached the surface, the warming and drying effect would be significant, the model suggested.

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