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Wind farms to crop up in northeastern North Carolina

PASQUOTANK COUNTY, N.C.

A long ride on a dusty Pasquotank County farm road - a right after the tractor shed, a left at the edge of the bean field - eventually leads to a recently harvested wheat field two miles from the nearest paved road.

After coming to a stop in a cloud of dust, lifelong farmer Horace Pritchard waved a calloused hand toward a field that stretched for miles to a horizon of trees.

It's on this sweeping horizon of fertile fields and crops where a new technology will be planted.

Atlantic Wind LLC is moving forward quickly with plans to erect up to 150 wind turbines on a 20,000-acre tract that stretches into parts of Perquimans County. It is an area that is among the few in the eastern United States with the right combination of key ingredients for wind-power generation: It's near strong coastal winds yet also remains remote and undeveloped.

"There's one going in here right at the end of these ditches," said Pritchard, who will lease enough land for nine wind turbines, each standing 350 feet tall at the hub. Each will have three blades more than 100 feet long.

Atlantic Wind LLC, a subsidiary of Iberdrola Renewables, will pay Pritchard and other landowners in Pasquotank and Perquimans counties \$6,000 per turbine per year. He and the other farmers still can work their land around the turbines' concrete base. This is like having a new crop with a steady income no matter the weather, he said.

"I've told people I don't know anything I could raise legal that could match that," he said.

In another project about 15 miles away from the Atlantic Wind project, Chicago-based Invenery plans to erect more than 100 turbines on thousands of acres of farmland in Camden and Currituck counties known as Hales Lake.

Each project will have a capacity production of 300 megawatts. Considered individually, each would be the largest wind farm in North Carolina and among the largest in the nation.

Turbines, which are getting larger and more efficient all the time, will produce up to 2 megawatts each, according to Atlantic Wind officials. By contrast, in 1990, a typical turbine had a capacity of 250 kilowatts, said Jen Banks, wind energy project coordinator for the North Carolina Solar Center.

Even allowing for calm days, the North Carolina projects are expected to power 50,000 to 60,000

homes.

Atlantic Wind, in its application to the state Utilities Commission, says it will invest \$600 million into the Pasquotank and Perquimans site, hire 600 people during construction and maintain 15 to 20 permanent employees. The company received permits from both counties last month and expects to begin construction before the year ends.

Invenery plans to submit applications for state and local permits later this year for the Camden County project. It will make investments and create jobs in numbers similar to the Atlantic Wind project, said Jack Godshall, development manager for Invenery.

Wind power is the world's fastest-growing new source of energy, supplying 2.5 percent of global electricity in 86 countries in 2010.

In the United States,

about 850 utility-scale wind farms in 38 states produce 2 percent of the nation's electricity, according to the American Wind Energy Association. The facilities can produce enough megawatts to power 10 million homes.

There are no wind farms in Virginia, but the state hopes to change that. The General Assembly has streamlined the process for accessing state financial incentives and has directed localities to do the same.

Because of heavy development, most eastern wind farms are on mountain ridge lines, said Wayne Harris, economic developer for Pasquotank County. Iberdrola, in fact, was attracted first to the North Carolina mountains but met with strong resistance.

Turbines on ridge lines in mining areas in West Virginia get less opposition than those proposed for mountain areas vital to the tourism industry, like those in North Carolina and Virginia, Harris said. A 19-turbine wind farm has been state-approved but not yet built in scenic Highland County in Virginia, and other projects in the state's western counties are being studied.

In the remote fields here, wind turbines will not be unsightly or noisy, except maybe to farmers.

"The stars have aligned for Pasquotank and Perquimans County," Harris said.

Local and federal tax breaks have fueled the wind-energy boom nationwide. Atlantic Wind, for example, is to recoup 30 percent of its investment from the federal government.

In Pasquotank County alone, the company's local tax bill has been permanently reduced from \$25,000 annually per turbine to \$5,000. Even then, Atlantic Wind will still be the county's largest taxpayer by three-fold.

State mandates also are driving the demand for wind energy. North Carolina is requiring utilities to produce at least 12.5 percent of their electrical power with renewable energies by 2021. In Virginia, a voluntary program encourages utilities to obtain at least 15 percent of their 2007 sales from renewables - including solar, wind and hydropower - by 2025.

Despite the incentives, utility-scale wind farms have struggled to get started in North Carolina. Three projects proposed in the past three years in the counties of Beaufort, Ashe and Currituck have stalled after struggles with financing, permitting, local opposition and other factors.

Wind energy is widely touted as energy efficient and easy on the environment, but it has its critics. Groups have established websites such as National Wind Watch, based in Massachusetts, and We Oppose Wind Farms, based in New York.

Opponents say the industry is growing only because it is benefitting from subsidies and tax breaks from a government caught up in the green movement.

Physicist and energy activist John Droz Jr. has been outspoken against wind energy in presentations in 10 states and in national articles. He spoke with officials in Pasquotank County.

"The more I look at what's going on here, the more disgusting it is," Droz said from his home in Morehead City, N.C. "This is not based on science."

Wind energy is unreliable and unnecessary, he said. In an online document of more than 200 pages, he debunks wind power and demonstrates its inefficiency and cost compared to value.

"Am I an anti-wind person?" he said. "No, I'm a science person."

After nearly two years of wind-velocity tests in Pasquotank and Perquimans counties, Ibertrola spokesman Paul Copleman defended the project and wind energy.

"We look at every site and evaluate the resource carefully," Copleman said. "If we didn't feel like the wind resource warranted the investment, we wouldn't do it."

On Pritchard's farm, a lean metal tower stands just short of 200 feet high. Tiny cups spin, measuring wind speeds, direction and consistency. The tower's guy wires lead down to the stubble of recently picked wheat. Close by sits a sonic detection and ranging device (SODAR), powered by an attached solar panel.

About the size of a small, enclosed moving trailer, the SODAR sends sound waves skyward to measure wind speeds far above the nearby wind tower, Copleman said.

The company does not reveal its wind measurements, but wind maps show that these spots in Pasquotank, Perquimans, Camden and Currituck counties have averaged wind speeds of about 15 mph at 80 meters, enough for utility production, Banks said.

Those winds that shape the growth of trees and help pollinate crops in rural northeastern counties will soon be home to the latest technology in wind turbines.

"I can't think of a better place to put them," Pritchard said.

The Roanoke Times contributed to this report.

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Questions:

1. How much money will Horace Pritchard make by allowing Atlantic Wind LLC to place 9 wind turbines on his land?
2. How much energy should the project by Invenergy in Camden and Currituck counties generate?
3. Wind turbine capacity has increased from 250 kilowatts to 2 megawatts per turbine. What percent increase is this? (show your work)
4. How many new jobs in NC are these two companies (Invenergy and Atlantic Wind) projected to create?
5. Wind turbines are well-suited for the mountains of NC. Why did companies have difficulty building there?

6. Companies tend to develop projects where tax breaks are given (both federal and state). How much of Atlantic Wind's expenses are they able to recoup through tax incentives?

7. What new requirement goes into place for NC utility companies in 2021?

8. What are some of the concerns given by the critics of wind power?



Pasquotank County