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Offshore Wind Power Line Wins Praise, and Backing

By MATTHEW L. WALD

Correction Appended

WASHINGTON — [Google](#) and a New York financial firm have each agreed to invest heavily in a proposed \$5 billion transmission backbone for future offshore [wind farms](#) along the Atlantic Seaboard that could ultimately transform the region's electrical map.

The 350-mile underwater spine, which could remove some critical obstacles to wind power development, has stirred excitement among investors, government officials and environmentalists who have been briefed on it.

[Google](#) and [Good Energies](#), an investment firm specializing in renewable energy, have each agreed to take 37.5 percent of the equity portion of the project. They are likely to bring in additional investors, which would reduce their stakes.

If they hold on to their stakes, that would come to an initial investment of about \$200 million apiece in the first phase of construction alone, said Robert L. Mitchell, the chief executive of [Trans-Elect](#), the Maryland-based transmission-line company that proposed the venture.

Marubeni, a Japanese trading company, has taken a 15 percent stake. Trans-Elect said it hoped to begin construction in 2013.

Several government officials praised the idea underlying the project as ingenious, while cautioning that they could not prejudge the specifics.

“Conceptually it looks to me to be one of the most interesting transmission projects that I’ve ever seen walk through the door,” said Jon Wellinghoff, the chairman of the **Federal Energy Regulatory Commission**, which oversees interstate electricity transmission. “It provides a gathering point for offshore wind for multiple projects up and down the coast.”

Industry experts called the plan promising, but warned that as a first-of-a-kind effort, it was bound to face bureaucratic delays and could run into unforeseen challenges, from technology problems to cost overruns. While several undersea electrical cables exist off the Atlantic Coast already, none has ever picked up power from generators along the way.

The system’s backbone cable, with a capacity of 6,000 megawatts, equal to the output of five large nuclear reactors, would run in shallow trenches on the seabed in federal waters 15 to 20 miles offshore, from northern New Jersey to Norfolk, Va. The notion would be to harvest energy from turbines in an area where the wind is strong but the hulking towers would barely be visible.

Trans-Elect estimated that construction would cost \$5 billion, plus financing and permit fees. The \$1.8 billion first phase, a 150-mile stretch from northern New Jersey to Rehoboth Beach, Del., could go into service by early 2016, it said. The rest would not be completed until 2021 at the earliest.

Richard L. Needham, the director of Google’s green business operations group, called the plan “innovative and audacious.”

“It is an opportunity to kick-start this industry and, long term, provide a way for the mid-Atlantic states to meet their renewable energy goals,” he said.

Yet even before any wind farms were built, the cable would channel existing supplies of electricity from southern Virginia, where it is cheap, to northern New Jersey, where it is costly, bypassing one of the most congested parts of the North American electric grid while lowering energy costs for northern customers.

Generating electricity from offshore wind is far more expensive than relying on [coal](#), [natural gas](#) or even onshore wind. But energy experts anticipate a growing demand for the offshore turbines to meet state requirements for greater reliance on local renewable energy as a clean alternative to fossil fuels.

Four connection points — in southern Virginia, Delaware, southern New Jersey and northern New Jersey — would simplify the job of bringing the energy onshore, involving fewer permit hurdles. In contrast to transmission lines on land, where a builder may have to deal with hundreds of property owners, this project would have to deal with a maximum of just four, and fewer than that in its first phase.

Ultimately the system, known as the Atlantic Wind Connection, could make building a wind farm offshore far simpler and cheaper than it looks today, experts said.

Environmentalists who have been briefed on the plan were enthusiastic. Melinda Pierce, the deputy director for national campaigns at the [Sierra Club](#), said she had campaigned against proposed transmission lines that would carry coal-fired energy around the country, but would favor this one, with its promise of tapping the potential of offshore wind.

“These kinds of audacious ideas might just be what we need to break through the wretched logjam,” she said.

Projects like [Cape Wind](#), proposed for shallow waters just off Cape Cod in Massachusetts, met with fierce objections from residents who felt it would mar the ocean vista. But sponsors of the Trans-Elect project insist that the mid-Atlantic turbines would have less of a visual impact.

The hurdles facing the project have more to do with administrative procedures than with engineering

problems or its economic merit, several experts said.

By the time the [Interior Department](#) could issue permits for such a line, for example, the federal subsidy program for wind will have expired in 2012, said [Willett M. Kempton](#), a professor at the School of Marine Science and Policy at the [University of Delaware](#) and the author of several papers on offshore wind.

Another is that [PJM Interconnection](#), the regional electricity group that would have to approve the project and assess its member utilities for the cost, has no integrated procedure for calculating the value of all three tasks the line would accomplish — hooking up new power generation, reducing congestion on the grid and improving reliability.

And elected officials in Virginia have in the past opposed transmission proposals that would tend to average out pricing across the mid-Atlantic states, possibly raising their constituents' costs.

But the lure of Atlantic wind is very strong. The Atlantic Ocean is relatively shallow even tens of miles from shore, unlike the Pacific, where the sea floor drops away steeply. Construction is also difficult on the Great Lakes because their waters are deep and they freeze, raising the prospect of moving ice sheets that could damage a tower.

Nearly all of the East Coast governors, Republican and Democratic, have spoken enthusiastically about coastal wind and have fought proposals for transmission lines from the other likely wind source, the Great Plains.

“From Massachusetts down to Virginia, the governors have signed appeals to the Senate not to do anything that would lead to a high-voltage grid that would blanket the country and bring in wind from the Dakotas,” said [James J. Hoecker](#), a former chairman of the [Federal Energy Regulatory Commission](#), who now is part of a nonprofit group that represents transmission owners.

He described an Atlantic transmission backbone as “a necessary piece of what the Eastern governors

have been talking about in terms of taking advantage of offshore wind.”

So far only one offshore wind project, Bluewater Wind off Delaware, has sought permission to build in federal waters. The company is seeking federal loan guarantees to build 293 to 450 megawatts of capacity, but the timing of construction remains uncertain.

Executives with that project said the Atlantic backbone was an interesting idea, in part because it would foster development of a supply chain for the specialized parts needed for offshore wind.

Interior Secretary [Ken Salazar](#), whose agency would have to sign off on the project, has spoken approvingly of wind energy and talked about the possibility of an offshore “backbone.” In a speech this month, he emphasized that the federal waters were “controlled by the secretary,” meaning him.

Within three miles of the shore, control is wielded by the state. Nonetheless, if the offshore wind farms are built on a vast scale, the project’s sponsors say, a backbone with just four connection points could expedite the approval process.

In fact, if successful, the transmission spine would reduce the regulatory burden on subsequent projects, said Mr. Mitchell, the Trans-Elect chief executive.

Mr. Kempton of the University of Delaware and Mr. Wellinghoff of the Federal Energy Regulatory Commission said the backbone would offer another plus: reducing one of wind power’s big problems, variability of output.

“Along the U.S. Atlantic seaboard, we tend to have storm tracks that move along the coast and somewhat offshore,” Mr. Kempton said.

If storm winds were blowing on Friday off Virginia, they might be off Delaware by Saturday and off New Jersey by Sunday, he noted. Yet the long spine would ensure that the amount of energy coming ashore held roughly constant.

Wind energy becomes more valuable when it is more predictable; if predictable enough, it could

replace some land-based generation altogether, Mr. Kempton said.

But the economics remain uncertain, he warned. For now, he said, the biggest impediment may be that the market price of offshore wind energy is about 50 percent higher than that of energy generated on land.

With a change in market conditions — an increase in the price of natural gas, for example, or the adoption of a tax on emissions of carbon dioxide from coal- or gas-generated electricity — that could change, he said.

Correction: October 12, 2010

An earlier version of this article misstated the size of the stake in the venture that Marubeni has taken. It is 15 percent, not 10 percent.



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