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SUSTAINABLE ENERGY STUDY #13

Rhode Island Study Wind Power Could Provide 75 Percent of State's Electricity Needs; Points to Offshore Resources:

A new Wind Energy Siting Study, commissioned by Rhode Island Governor Donald Carcieri, examined the potential for the state to meet its goal of drawing on wind power for 15 percent of its power needs. The study, released April 18, confirmed that the goal is achievable at competitive prices and found that more than 95 percent of Rhode Island's potential wind energy resources are located offshore.

The study identified only one potential onshore location for a large wind energy project. In contrast, the study identified 10 potential offshore areas covering 98 square miles that could produce a total of 6 million megawatt-hours (MWh) of electricity each year, well above the state's goal of 1.3 million MWh per year. That is, about 75 percent of Rhode Island's power needs could come from wind power if all of it were exploited.

About three-quarters of the offshore wind resource is located in state waters, where projects could avoid the federal permitting process.

However, the study notes several challenges to developing these resources, including the lack of U.S. experience with offshore wind power, the lack of sufficient transmission lines near the Rhode Island shore, the difficulty of financing such projects, and uncertainty about public acceptance of such projects. To help address these issues, the governor announced plans to establish a community stakeholder group to select the best locations for wind power, and the state has already held a two-day conference to review the study results.

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"Final Report RIWINDS Phase I - Wind Energy Siting Study":

04-18-2007

The results of a wind power siting study, commissioned by Governor Donald L. Carcieri, demonstrate that Rhode Island enjoys sufficient wind capacity to meet the goal of achieving 15 percent of the state's electricity generation from wind power.

The study shows that Rhode Island contains almost one hundred square miles of areas in which wind power is feasible within the set criteria, with 87 square miles under state control. About 75

percent of Rhode Island's power needs could come from this source if all of it were exploited. Much of the area is in water off the Rhode Island coastline.

"In January 2006, I created the Office of Energy Resources and tasked it with finding a way to generate 15 percent of Rhode Island's electricity from wind power. My goal was simple. I wanted to encourage Rhode Island's energy independence through the use of a renewable source," Governor Carcieri said. "This study shows that we can make that goal a reality. In fact, it makes clear for the first time that Rhode Island enjoys enough wind to achieve five times that amount of electricity generation."

"We need to make clear that the study only shows the areas where wind power is technically feasible at costs that are competitive with today's market prices, and that have no obvious fatal flaws from a permitting perspective," continued Carcieri. "We have made no decisions on where to locate wind facilities. We are not looking to load up all these areas with wind turbines, but rather to select the best areas where we can proceed. This will take a lot of community, expert and stakeholder input."

Governor Carcieri emphasized that the wind siting study was only the first step in the process of determining where wind generation facilities might be located and announced plans to create a stakeholder process to ensure that a broad array of interests are considered in actual siting decisions. He directed the Office of Energy Resources to bring together representatives from affected communities, environmental groups, representatives of the business community, groups that use the public lands and waters under consideration, as well as members of the public to determine where wind power facilities could be located.

"I am also announcing that this project will be known as 'Energy Independence 1'," Carcieri continued. "This new brand indicates that this is only the beginning of our efforts to reduce electricity prices and to wean our state off foreign energy sources."

The report also points to the value of a Rhode Island power authority in advancing the wind power initiative. Governor Carcieri noted the necessity for such an entity in his State of the State address, and legislation has been introduced in both the House and the Senate to create such an entity. Andrew Dzykewicz, the Commissioner of the Office of Energy Resources, said this entity would own the power output and assure that the power is offered for sale first to Rhode Island ratepayers. Developer owned projects would likely sell the power into the wholesale market, into a pool from which Rhode Island uses only 6 percent.

The report further concludes that Rhode Island could benefit from the jobs created from moving forward with this initiative. "Not only could existing Rhode Island companies provide many of the components necessary to construct the turbines, but Rhode Island could establish a center of excellence around the renewable energy sector," said Saul Kaplan, Director of the Economic Development Corporation.

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Executive Summary (excerpts):

In January 2006, the State of Rhode Island established the RIWINDS program to promote the development of wind energy in the State. The goal of the program is aggressive: to meet 15 percent of the State's 1000 MW annualized average electric demand, or 150 MW. This results in the demand of 1,300,000 MW-h per year. This requires approximately 450 MW of wind energy capacity due to the intermittent nature of wind energy generation.

The scope of the study was to evaluate the entire State of Rhode Island, including offshore waters, to identify the most viable areas for wind energy development and assess the potential energy generation associated with these areas. The process screened and prioritized potential areas, both on land and offshore, taking into consideration technical, environmental, financial, and public acceptance issues. The study evaluated projects using utility scale wind turbines (1.5 MW and larger) for small customer-connected and community installations as well as for large, wholesale installations where all of the power is fed into the New England electric transmission system.

Key results of the study include:

- a.) The RIWINDS program goal is achievable.
- b.) The cost of wind energy to meet this goal appears to be competitive with the projected cost of electricity in Rhode Island.
- c.) There are significant wind resources in the state of Rhode Island both onshore and offshore.
- d.) Eight towns or cities have expressed interest in developing small wind projects in their communities. They have formed the "Rhode Island Wind Alliance" to further wind power development in the state.
- e.) Only four sites were identified as potential industrial/institutional customer connected project sites using utility-scale wind turbines.
- f.) Only one viable area for a wholesale onshore project has been identified.
- g.) Over 95 percent of the wind energy opportunity in Rhode Island is offshore. A total of 10 potential different offshore areas were identified with a total of 98 square miles, which can produce over 6 million MWh of wind energy per year.
- h.) Approximately 75 percent of the offshore wind opportunity is in State waters. The remainder is in Federal waters.

Challenges to Implementation:

- a.) This siting study is the first step in the development of the RIWINDS project. The results of this study need to be refined by a development entity as part of the project implementation. Unlike onshore wind energy projects, there are currently no offshore wind projects in operation

in the U.S. There are a number of small offshore projects in Europe, but many of these are demonstration projects, which have been funded by their respective governments. These projects are viewed as successful and there are plans to significantly increase the number of offshore projects in Europe. There are a number of offshore projects under development or being studied in the U.S. in the Northeast, Southeast, Gulf of Mexico, and in the Great Lakes, but none have received final approval.

b.) There is insufficient electric transmission system capacity in Rhode Island to distribute the power generated from large offshore projects to electric customers. The transmission lines are not located near the shore and the transmission lines closest to the shore do not have the capacity to transmit the electric generation to the electric loads in Rhode Island.

c.) Financing capital-intensive projects, such as wind energy projects, in the restructured New England electric market will be difficult without long-term power contracts from a power authority or some other entity to finance projects. The certainty of long-term power contracts by a power authority or some other entity would make investors and financial institutions more willing to invest in these projects by reducing revenue risk. This, in turn, reduces the cost of financing these projects.

d.) Public acceptance of the offshore wind projects is critical to the success of the RIWINDS programs. However, public perception of these wind projects is difficult to predict. For example, a recent study of the public perception to offshore wind in Delaware is generally positive, yet there has been a good deal of public resistance to the Cape Wind project off of Cape Cod, Massachusetts, in spite of the fact that the majority of public sentiment is in favor of wind energy generation.

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The full text of the 132-page report "Final Report RIWINDS Phase I - Wind Energy Siting Study" can be found on-line at <http://www.riseo.state.ri.us/pdf/RIWINDSReport.pdf>.

A press release announcing the findings of the study can be found at: <http://www.ri.gov/GOVERNOR/view.php?id=3970>