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Renewable Energy

Marine Renewables Sector Begins to Take-Off in 2012

[Photo: Fundy Ocean Research Center for Energy – or FORCE]

The U.S. lags behind Europe in the development of offshore wind (OSW) projects in part due to the lack of a mandatory national renewable energy standard and other tax incentives. But, the Obama Administration has set its own voluntary goal of producing 80% of the nation's electricity from clean sources by 2035. And, various federal agencies have worked diligently to promote new sources of energy, including OSW and tidal and wave energy. This year, we anticipate the first new commercial leases for wind off the Atlantic Seaboard (since Cape Wind), and the first commercial project for tidal energy in New York Harbor. This article reviews the current legal and regulatory framework for OSW and tidal energy, and the remaining impediments to further progress and next steps for going forward. The most recent estimate of the Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) is that there are over 4,000 gigawatts of potential offshore wind resources in the U.S., or four times the existing sources of electricity. Wind is abundant on the U.S. Outer Continental Shelf (OCS) and relatively "free" once it is tapped. Getting the wind developed and brought to shore is another matter.

Why Tidal Energy?

Two recent DOE reports estimate that wave and tidal energy off the nation's coasts could contribute significantly to the total annual electricity production of the U.S., or up to 15% of its electricity by 2030. Companies like Verdant Power are tapping into this available energy source by developing projects in the East River of New York. On January 23, 2012, FERC granted Verdant Power the first commercial license for tidal power in the U.S.

The "Smart from the Start" Initiative

Giving credit where credit is due, one must give credit to Secretary Ken Salazar and his Department of the Interior (DOI) for developing the "Smart from the Start" Initiative. Secretary Salazar announced this initiative on November 23, 2010 to accelerate the responsible development of renewable energy resources on the Atlantic OCS. The main objective is to identify areas on the OCS, so-called Wind Energy Areas (WEAs), which are best suited for wind development. The underlying authority for the development is Section 388 of the Energy Policy Act of 2005. Federal law enables DOI to lease areas of the OCS for wind development. However, this jurisdiction does not extend to State waters. DOI recognized early on that bringing the wind onshore would require collaboration with the States along the Atlantic. As a result, DOI supported a series of Task Forces, comprised of federal, state, local, and tribal stakeholders, to resolve use conflicts and identify the most suitable WEAs. While there have been stops and starts in the program, the Task Forces were able to resolve most of the critical use conflicts, i.e., between military, shipping, port, and other existing uses of the WEAs. On February 3 and 6, 2012, respectively, DOI issued Calls for Nominations (Calls) for leasing specific WEAs off the coasts of Virginia, Maryland, and Massachusetts. (Areas off New Jersey and Delaware were already the subject of Calls.) DOI announced the Calls simultaneously with issuing a final Environmental Assessment (EA) on the defined WEAs, concluding that there would be no significant impacts caused by the lease sales. Under a lease, a developer can only conduct certain site surveys and collect meteorological and other data. Further environmental reviews would be deferred until proposed construction of a wind farm. Interested developers had until March 19, 2012 in the case of VA and MD, and March 22, 2012 in the case of MA, to respond to the new Calls. If there is competitive interest in a particular Call area, DOI, through the Bureau of Ocean Energy Management (BOEM), will conduct an auction to sell the leasehold interests. BOEM will finalize its auction procedures prior to the actual sale beginning. BOEM expects to award leases off the Atlantic Seaboard by the end of the year.

How Will Power Be Brought Onshore?

Like their onshore counterparts, OSW projects must be "interconnected" to the land-based power grid to deliver the electricity they generate. The construction of new transmission lines, while critical to integrating renewable resources, faces powerful barriers, such as cost recovery uncertainty, siting concerns and technological limitations. In an effort to incentivize investment in transmission, FERC issued rules establishing several broad categories for incentive rate treatments for transmission investments including: incentive rates of return on equity for new investment; use of hypothetical capital structures; and accelerated depreciation.

The Atlantic Wind Connection project (AWC), which promises to build the first offshore "transmission highway," successfully petitioned FERC for incentive

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rate treatment in 2011. AWC would consist of four 320 kV direct current transmission cables that will run parallel to the Mid-Atlantic coast approximately 20 miles offshore for 250 miles. This project would integrate OSW generation with the land-based transmission system in New Jersey, Delaware, Maryland, and Virginia. While it succeeded in obtaining FERC rate treatment, such approval was conditioned on the transmission project being included in the Regional Transmission Expansion Planning (RTEP) process of PJM. Therein lies the challenge for AWC. Regional planning processes, like RTEP, generally only consider transmission projects that address a demonstrated reliability need or economic benefits. However, a recent FERC rule will require regional planners to consider "public policy requirements" when conducting planning studies. The new mandate offers renewed hope for offshore transmission projects, such as AWC, that otherwise would not be "economic" or alleviate reliability concerns.

What Role Will the States Play?

Several States with the potential for OSW have commenced initiatives aimed at fostering the development of this growing industry. New Jersey became one of the most prominent when it announced in its 2008 Energy Master Plan its goal of installing 1,000 MWs of OSW. While several years behind schedule, the 1,000 MW target remains a State goal.

Last summer, the New Jersey Board of Public Utilities (NJBPU) launched stakeholder proceedings on implementation of the State's Offshore Wind Economic Development Act (OWEDA). One of those hearings explored various methods for funding the state's Offshore Wind Renewable Energy Certificates (ORECs). Despite the NJBPU activity, uncertainty pervades the OREC market.

In Maryland, Governor O'Malley pledged support for the Maryland Offshore Wind Energy Act of 2012 that would establish an OSW "set-aside" within Maryland's Renewable Portfolio Standard. The proposed bill would require regulated utilities to comply by developing or purchasing ORECs by 2017. The OREC model comes after last year's attempt at similar OSW legislation that centered on long-term (25+ years) power purchase obligations. That bill largely failed as a result of cost concerns.

States like Virginia have not pursued the OREC model but are more reliant on investor-owned utilities developing OSW when prices become more competitive.

What are the Remaining Impediments to Offshore Wind?

A number of economic and regulatory barriers need to be surmounted for OSW to achieve its potential to provide an abundant source of clean energy and to mitigate climate change.

• Economics

One reason the U.S. has not developed OSW to date is that the economics of OSW are not currently attractive. The installed capital cost of OSW is materially higher than onshore facilities and OSW requires comparatively higher operation and maintenance costs since OSW facilities at sea are more difficult to access and maintain. The economics of OSW can be materially enhanced by government incentives and the liquidity of markets for commodities the OSW produces (i.e., renewable energy and renewable energy certificates (RECs). The production tax credit (PTC) and the Section 1603 cash grant have played pivotal roles in the development of wind generation. The PTC confers a dollar-value credit (currently $2.11/kWh) for each kWh of wind electricity generation. Unfortunately, the PTC for wind will expire at the end of 2012 and the cash grant expired at the end of 2011.

OSW must have viable markets for the long-term sale of energy and RECs. Liquid markets with plentiful energy and REC off-takers do not exist. In the absence of markets created by regulation, like portfolio standards, and designated markets for OSW RECs, OSW developers will struggle to find off-takers willing to commit to long-term purchases and financing will be hampered.

• Regulatory

OSW represents a relatively new technology in the U.S. and the necessary regulatory infrastructure has not yet developed. For example, there is insufficient coordination between BOEM and states which have to regulate the siting of transmission in their waters. Finally, while BOEM has leasing authority, it lacks one-stop permitting authority over the entire process. At the end of the day, a number of environmental and civil authorities still must approve the lease.

What Does the Future Look Like?

A handful of serious developers are continuing to pursue OSW development. They are primarily looking to states to develop the incentives needed to support development of this available source of renewable energy. If the U.S. is to reduce its dependence on foreign oil, it should promote this form of abundant energy with appropriate policies and tax credits. Consumers, too, must be willing to pay more, at least initially, for this clean energy until it can become more competitive with existing sources.

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