Martha's Vineyard Offshore Wind Alliance

Response to Commonwealth of Massachusetts

Request for Additional Information:

Offshore Renewable Energy

April 18, 2011

Introduction

The Martha's Vineyard Offshore Wind Alliance (MVOWA) appreciates the opportunity to provide comment on concepts that have the potential to support significant build-out of the Massachusetts RFI area with wind energy. We welcome and applaud the Commonwealth's objective of building, cost effectively, 4000 MW of offshore wind energy installed in federal waters offshore Massachusetts. This objective is a also a major challenge, and MVOWA hopes to have the opportunity to work with state officials and policy makers, utilities, the variety of companies and trades that will contribute to a new industry, and the many other stakeholders, in meeting this challenge together.

The Martha's Vineyard Offshore Wind Alliance is a collaboration of the Vineyard Power Cooperative and OffshoreMW LLC. OffshoreMW is an offshore wind project development company funded by the Blackstone Group (NYSE: BX). A sister company, which shares the same investors and key management, is currently in the process of closing financing on a 288 MW project in the German North Sea. The Vineyard Power Cooperative is a community-owned energy cooperative dedicated to securing a stable energy future for Martha's Vineyard. The Coop currently has a 1 MW solar project and an innovative Demand Side Management program underway.

In response to the BOEMRE's Massachusetts RFI, MVOWA proposed to lease an area for a 1000 MW offshore wind project, generally located in the north-west portion of the RFI area. This proposed project is intended to contribute to both the state's objective of 4000 MW of offshore wind, as well as support the Cooperative's long-term objective of supplying all of Martha's Vineyard's energy needs with stable-priced, local, renewable energy. Further details on the proposed project are provided in MVOWA's lease application to BOEMRE, and copies of this application have been made available to Massachusetts officials; we offer our BOEMRE RFI response to be considered as part of our response to the complementary Massachusetts RFI as well.

Our comments here are based on what we have learned in developing our project proposal, and what key policies will be needed in order to see our proposed project, or indeed any significant amount of offshore wind developed by any company, come to fruition. We do not make

specific or detailed suggestions, as we believe these would be best arrived at through discussion among all stake-holders. Rather, we offer general comments highlighting what we believe to be key concepts or ideas that need to be considered as industry, policy makers, and other stake-holders work to build an offshore wind industry for Massachusetts. We provide comments on the key areas of financing, transmission, and the interrelated topics of infrastructure, supply chain, operations facilities, and economic development. We also provide our thoughts on integrating the Commonwealth's newest offshore industry, wind energy, with its oldest offshore industry, fishing.

However, as described below, of all of these issues the single most important is that of financing, since without addressing this issue, all other issues are moot.

Financing

Financing thousands of megawatts of any sort of energy generation in a relatively short timeframe is a challenge to industry as a whole, let alone any one company or developer. This is particularly true in the United States, where the finance industry has largely turned away from project finance. Furthermore, offshore wind in particular is a challenge because of the high capital costs and the fact that it is a still maturing technology.

However, we are confident that industry will rise to meet the financing challenge, along with the many other challenges of such an ambitious undertaking, if the Commonwealth puts the right policies in place. We can also say with certainty that without the right policies to support financing projects of this scope, there will never be any meaningful amount of offshore wind off of Massachusetts no matter what other policies or programs might be undertaken. Therefore, we strongly recommend that the Commonwealth focus on addressing this issue first and foremost as it strives to build a new offshore wind industry and achieve its 4000MW objective.

We are not proposing a specific policy here, but rather make some general observations that we believe need to be kept in mind when designing an effective policy. Given the nature of the electric utility industry in New England, any offshore wind project will most likely be financed on a non-recourse, "project finance" basis (in contrast to a company financing the project on its balance sheet). This approach involves lenders making loans against future revenues of the project only- there is no other entity that lenders can turn to if the project fails to earn the revenues needed to repay the loans, and the physical assets of the company have little value if they aren't earning the anticipated revenues in the first place. This in turn means that two factors are absolutely critical for project financing to occur:

1) The projects have to generate sufficient revenue to ensure that operational costs are covered, lenders are fully repaid and earn their agreed upon returns, and equity investors, who get paid only after lenders are paid, have a reasonable likelihood of earning returns appropriate for the amount of risk they take (the less risk, the lower the return).

2) The project's revenues has to come from a secure source, such that there is very little or no risk of the revenue not being available for reasons beyond the project's control. That is, the project must have a credit-worthy buyer for its output.

What this means for Massachusetts policy is that a market needs to be created for offshore wind energy in which the price is sufficient, and the buyer is credit worthy and secure. Getting these two fundamentals right is the only way to ensure that offshore wind projects happen in the state. Furthermore, these two factors are directly linked, in that the more secure the buyer the less risk, and the less risk the lower returns needed to finance, and the lower the returns the lower the cost of energy to ratepayers.

There are a number of mechanisms that could be used to arrive at a price that is sufficient to achieve the policy objectives, and at the same time ensure that ratepayers aren't overpaying. The details of the mechanism used to arrive at a price are not particularly important. However, it is important to acknowledge that the price will be higher than current market prices.

In acknowledging this fact, we should note that comparing the price of a new source of pollution-free, stable-priced, energy with the current market prices of energy from price-volatile, polluting sources is not a comparison of equal attributes. How to value these different attributes and achieve a more meaningful price comparison is beyond the scope of this document, but is an important question that will likely need be addressed in developing a financing policy.

Given that the price of offshore wind will be higher than current market prices, a successful finance policy might employ various means to mitigate this price differential. We suggest two possible mitigation measures for further exploration:

1) Ensure that the offshore wind energy is utilized by the largest amount of load as possible, so as to minimize the impacts on a per user basis or per KWh basis. This might mean, for example, that any policy apply state-wide, as opposed to on a utility company basis. A regional approach would take this concept even further. Given the interest of Maine and Rhode Island in also utilizing offshore wind, this approach could be feasible despite interstate rivalries. Such a regional approach might be realized, for example, through a compact among the states in which each state agrees to buy output from any offshore wind project in the region on a load proportional basis. This would significantly dilute any price impacts early in the industry's development, when prices can be expected to be highest.

2) Incorporate offshore wind energy simultaneously with other energy sources that are less expensive, but share some of the desirable characteristics of offshore wind. For example, a single program could simultaneously finance offshore wind as well as efficiency investments or investments in other types of renewables that can be implemented sooner or at less cost, but can't ultimately achieve the desired scale or job creation that offshore wind can provide.

Our discussion above has focused on state and possibly region-wide policies that would be needed to support the economic financing of 4000 MW of offshore wind. In addition, MVOWA is also interested in advancing a more limited policy targeting the area served by the Vineyard Power Cooperative. The purpose of the policy would be to enable the Martha's Vineyard

community to achieve their objective of more local energy sources and greater energy self-reliance, while at the same time contributing to the state's offshore wind objectives by enabling the financing of as much as 100 MW of offshore wind. This would be achieved by establishing the Vineyard Power Cooperative as the default electricity provider to Martha's Vineyard. This would in turn enable the Cooperative to be a credit-worthy off-taker for a portion of the project (or all of a smaller phase of the project). As described above, having a credit-worthy off-taker is one of the key elements needed for an effective financing policy.

Infrastructure, Supply Chain, and Economic Development

A key driver in the growing interest in offshore wind is economic development and job creation. There is no doubt that offshore wind holds the potential for redirecting millions of energy dollars that currently leave the state, if not the nation, by instead putting these dollars to use in Massachusetts, and thus creating in-state jobs. The offshore oil and gas industry in the Gulf of Mexico, and the growing offshore wind industry in Europe, particularly the UK, are examples of this vision having already been realized by others.

Sometimes it is claimed that a state or region needs to be "first" in some regard to offshore wind in order to benefit from its job creation potential. We do not agree. Rather, what is important is building scale in a sustained fashion. A single project that happens to be "first" simply will not attract enough investment or interest in order to build an industry and create permanent or sustaining jobs. The first offshore wind farm was in Denmark, in 1991. It would be nine years later before the United Kingdom built its first offshore wind project. And yet today, the UK currently employs an estimated 4000 people in the offshore wind industry[1] and more and more companies are announcing the opening of offshore wind facilities in the UK. The reason for this is because the UK implemented a plan not to be first, but rather to be among the biggest users of offshore wind. Three "rounds" of development were developed so as to capture lessons learned and provide an orderly ramping up to scale, but all the while (with inevitable bumps in the road) showing industry and investors a commitment to supporting the growth of a true industry of over 25 GW of offshore wind.

Massachusetts has in effect completed its "first round", with the award of a lease, permits and PPA to Cape Wind. If the state wants to make the most of this effort, and not let the larger opportunity slip away, it must quickly develop a policy framework and plan to support the state's and the region's next rounds of offshore wind projects.

We suggest that the projects resulting from the current BOEMRE RFI be considered a "Round Two" for Massachusetts, transitioning from a single project in the hundreds of MW to multiple projects totaling 1000s of MW. In this way, the infrastructure and job creation from Cape Wind could conceivably grow and be carried over into the next round of projects. Given that Cape Wind will be going to construction within the next 1-2 years, it will be important to quickly move on implementing a "Round Two" policy, so as to sustain and grow job creation and make efficient use of infrastructure.

[1] http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/6702.pdf

A third round might be to utilize the deeper waters further offshore Massachusetts, most likely using technologies that have yet to be developed. The state's strengths in innovation and technology development play well to the need to develop wind generation technologies for these deeper waters.

A challenge that Massachusetts faces in building an offshore wind industry, perhaps through such a series of rounds as described above, is its relatively small size in terms of population, and thus market for offshore wind. The challenge of small size is a familiar one to New England states on any number of fronts, and this challenge is certainly not unique to offshore wind. The solution is a regional approach, and fortunately other states in the region have also expressed interest in developing an offshore wind industry. The region already shares a common electricity market, and there are also precedents for regional cooperation that could serve as models or examples (e.g. RGGI and commuter rail).

The location of infrastructure and supply chain to serve Massachusetts offshore wind projects will in large part depend on how successful the state is in supporting a large and growing offshore wind industry. Simply put, the larger and more sustainable the industry in the state or region, the larger amounts the amounts infrastructure investment and supply chain development the state will attract, no matter when its "first project" occurred.

Regarding a construction port, we have looked closely at the port of New Bedford and agree with others that, with some necessary improvements, it could be an ideal port for offshore wind. The lack of a bridge, power lines, or other overhead obstruction is unique among most ports on the East Coast, and could prove a critical factor as turbine sizes increase and installation methods evolve. The port also has short access to open water, and yet is well sheltered. Challenges include sufficient channel and turning area, lack of suitable bulkheads and lay-down/storage area. The Governor's recent announcement to develop a marine terminal in New Bedford addresses many of these challenges, and we hope to be able to utilize New Bedford to build the project we've proposed.

There are any number of possible locations in Massachusetts that could be utilized to for an operations facility to support the MVOWA project. New Bedford could serve this function, in addition to being a construction port. Given our Martha's Vineyard roots, we will naturally be looking closely at Martha's Vineyard as a possible location for an operations center. OffshoreMW's German sister company is locating an operations port for its 288 MW project in the North Sea on the island of Helgoland, so as to position an operations port closer to the project. Similarly, locating the operations port for the MVOWA project on Martha's Vineyard may provide logistical advantages. At the same time, there are disadvantages to locating such a facility on Martha's Vineyard as well, and other suitable ports on the Massachusetts mainland may not be significantly further from the project area. The location of these support and operations facilities will be closely considered as the project develops, with an emphasis on locating the facility on Martha's Vineyard whenever feasible.

Transmission

Transmission and interconnect constraints are a major challenge to achieving the Commonwealth's objective of 4000MW of offshore wind in the RFI Area. At the same time this challenge is also an opportunity to facilitate the development of this new industry, and drive down the costs of offshore wind for the state or region. A strategic and comprehensive approach to transmission and interconnection should clearly be a focus of any offshore wind policy or initiative for Massachusetts.

There are at least three important reasons why a strategic offshore interconnection approach could drive down costs of offshore wind for Massachusetts. First, there are the simple constraints of physics and geology. Many areas within the RFI Area that might be suitable for offshore wind generation per se are not suitable for offshore wind projects because of the long distances to mainland interconnect points. Both engineering limitations that traditional AC radial connections would present, as well as the economics of such facilities even if they were technically feasible, limit the total developable area within the RFI Area. Opening up larger areas for development that would otherwise be transmission constrained could mean greater access to less expensive wind areas. In addition, sharing facilities further offshore might create economies of scale.

The second reason a strategic approach to transmission is promising is that of public policy, in particular recent innovations in the views that FERC takes to transmission projects, and the relationship between ISOs, transmission projects, and ratepayers. Traditionally, FERC has evaluated transmission projects through the lens of reliability, cost savings, or both. Transmission projects that did not either enhance reliability and/or create immediate cost savings to ratepayers could not be rate-based by the ISOs. However, two recent decisions by FERC, relating to California and the Midwest ISO, suggest that FERC is now also considering additional values to transmission projects, including the value of achieving state policy objects (such as renewable energy standards) cost-effectively. These decisions and the new FERC positions they portend could prove an important window of opportunity for the development of transmission to serve Massachusetts offshore wind.

Thirdly, developing offshore transmission infrastructure separately from offshore generation projects could reduce costs by better harnessing core competencies and expertise, more efficiently allocating risk, and accessing capital with lower return hurdles (and thus be less expense to ratepayers). Separating competition to provide offshore transmission from competition to provide offshore wind generation could capture some of these savings, if not also simply create more intense competitions and thereby also drive down costs.

Despite all of the potential benefits described above, there are also potential drawbacks to a comprehensive offshore transmission approach. Many of the potential benefits described above are theoretical and have not been demonstrated in the real world, to our knowledge. The technology needed to implement such a comprehensive strategy is often new and commercially unproven, or if available only at costs that negate potential savings. And even if the technology and economics make sense, the project-on-project risk and other coordination that would be

needed to integrate large transmission projects with multiple large generation projects might put such strategies out of reach, at least in the current regulatory environment.

OffshoreMW met with several different transmission project development companies to learn their thoughts on best approaches to interconnection offshore Massachusetts. From these companies we heard agreement as to the potential benefits of a comprehensive offshore transmission approach, as described above, and came to better understand the near-term prospects for improved technology. These discussions allowed us to better integrate and coordinate our generation project with possible transmission solutions that might be proposed to serve the RFI Area. Specifically, we proposed a 1000 MW project as we understand this to be a "sweet spot" in terms of optimizing HVDC technology that will soon be commercially available.

While it is desirable to plan on capturing the benefits of a comprehensive interconnection strategy, planning a project (and industry for the state) on the assumption that such an interconnect solution will definitely become available would not be prudent. What is needed to move the industry forward is a project that could utilize a traditional single-project interconnect approach if necessary, but is also readily adoptable to a more comprehensive interconnect solution should it becomes available. This is exactly what MVOWA has provided with its proposed project. We are strong supporters of a comprehensive interconnection approach, and have been and will be active in seeing such a solution realized. At the same time, we are prepared to utilize a single-project interconnect solution if necessary.

Specifically, OffshoreMW engaged a leading electrical engineering firm, with considerable offshore wind experience, to identify a single-project interconnection solution for our proposed 1000 MW project. While the details of their findings are being kept confidential at this time, we do provide a memo in our BOEMRE lease application summarizing the findings and confirming that such a single-project interconnect solution is feasible.

In order to better advance a comprehensive interconnection solution, OffshoreMW teamed with Transmission Developers Inc (TDI) to submit a grant proposal to the US Department of Energy "Removing Market Barriers to Offshore Wind" program. TDI is a leading transmission developer in the US, with an emphasis on bringing renewable energy to markets. Should our grant proposal be funded, we believe the study will be very useful in identifying cost effective technology solutions to interconnecting 4000 MW offshore Massachusetts. We hope the study effort will be a collaborative effort with area utilities, ISO-NE, technology providers, policy makers, and other developers to design a feasible and practical solution from which the state and industry at large will benefit.

In addition to technical issues, other policy and legal issues will also need to be considered in developing a comprehensive solution. For example, should such an interconnection project be funded through a "rate-based" approach, or through a "user-pays" approach? As with any complicated decision there are advantages and disadvantages to each approach. Furthermore, there are not just policy considerations in making these decisions, but also practical considerations to consider so as to best ensure ultimate success of any such project. MVOWA looks forward to engaging in this discussion and participating in any initiatives, public or private, to provide a comprehensive interconnection solution.

Fishing

MVOWA is keenly aware that offshore wind is a new industry for an area of the ocean that has been used for literally hundreds of years by the fishing industry, and we spent considerable time and effort in addressing this issue. Ensuring the compatibility of these two industries is essential not just for the success of our proposed project, or any one proposed project, but also is critical to achieving the promise of a new offshore wind industry.

To this end, MVOWA has engaged Jim Kendall, a former fishermen and leading fisheries industry consultant, to serve as a liaison with the fishing industry. We met with numerous fishermen, studied available research, and attended a number of meetings regarding fishing and offshore wind. From all of this, we have become confident that offshore wind and commercial fishing are compatible, and both can be simultaneously sustainable offshore industries for Massachusetts.

We believe this compatibility is achievable through the following approach:

1) Avoid the most important areas for fisheries. This can be achieved by consulting with the fishing industry early in the process of identifying wind energy areas, and by modifying proposed areas through task force and other consultative processes. We believe this has been successfully happening, and will continue to happen, in Massachusetts. Ideally, the management of wind energy development areas and fisheries management areas would be fully coordinated so as to optimize both resources compatibly.

2) Accommodate fishing within wind energy areas to the greatest extent feasible. Clearly some types of fishing could easily continue within wind parks, and other types of fishing simply could not. Both industries and regulators should work together to ensure that the only limitations are the practical ones, given the technologies and practices. Any regulatory or other legal limitations should be avoided if at all possible, and those that are put in place (if any), should have a real-world, genuine-need basis. Furthermore, the wind and fishing industries should develop and maintain a constructive dialogue so that both wind park design, and possibly fishing gear and methods, might evolve so as to allow the greatest shared use of the ocean area feasible.

3) Develop programs and procedures that give both industries confidence that incidents at sea are handled as safely as possible, and with minimal economic disruption. If the goal of sharing the ocean resource is to be met, it must be acknowledged that unplanned interactions are possible and therefore likely inevitable. Planning for such incidences in advance will not only ensure the on-going safety of all parties, but also give all involved greater confidence in working together in a business-like manner, with confidence that even a "worst case" situation can be addressed satisfactorily.

For example, agreements could be put in place as to procedures should fishing gear become entangled with offshore wind equipment (most likely foundations or cables). Such agreements have a long and favorable track record in the telecommunications industry. The basic concept is that fishermen who lose gear to entanglement should have a means of compensation, so long as they follow previously agreed upon protocols to avoid such

entanglement in the first place, and follow agreed procedures to ensure safety and protect wind farm equipment.

Summary

In summary, we believe that a policy to allow economic financing of offshore wind projects is of first and foremost importance to achieving this objective. Without such a financing policy in place, there will be no additional offshore wind projects to serve Massachusetts, and the various offshore wind benefits identified by the Commonwealth will not be realized (and of course, other issues will become moot). Transmission and interconnect is a critical challenge, and a comprehensive solution could provide advantages. At the same time, there are costs and downsides to such a comprehensive solution, and so further consideration is warranted. OffshoreMW has submitted a grant proposal to the US Department of Energy to study this question further. The project MVOWA has proposed would benefit from such a comprehensive interconnect solution, but could also move forward with a single-project interconnection if necessary. The size of job creation and economic benefits of offshore wind for Massachusetts is entirely dependent on scale to which the state and the region can grow the industry through effective financing policies. Meanwhile, we can say that New Bedford would serve well as a construction port given improvements that have already been announced. Further, we are closely considering Martha's Vineyard as a location for an operations center. Finding means by which both the wind and fishing industries can prosper together is essential. We believe this is entirely possible by avoiding the most critically important fishing areas, ensuring that fishing can continue in wind parks to the greatest extent feasible, and developing programs to resolve wind/fishing interactions in a manner that is both safe and fair.

MVOWA appreciates the opportunity to offer our comments on how Massachusetts might best achieve its objective of 4000 MW of offshore wind. We look forward to working with the state, other industry participants, and all stakeholders to develop effective policies for realizing the benefits of 4000 MW of offshore wind spinning off the shores of Massachusetts.