MINUTES
VIRGINIA OFFSHORE WIND DEVELOPMENT AUTHORITY
STATE CORPORATION COMMISSION
TYLER BUILDING – COURT ROOM 2
1300 EAST MAIN STREET
RICHMOND, VA

THURSDAY, JANUARY 16, 2014

CALL TO ORDER

Chair Bob Matthias called the meeting to order at 10:10 a.m. He asked each member to introduce and tell a little bit about themselves.

Members Present: Joan Bondareff, Mary Doswell, Douglas Faulkner, Bob Matthias, Art Moye, Brian Redmond, Ron Ritter, Ronald Rosenberg

Members Absent: None.

Staff and Contractor Support Present: Conrad Spangler, DMME Director; Al Christopher, DMME Energy Division Director; Ken Jurman, DMME Renewable Energy Manager; Lynne Astroth, DMME Energy Project Coordinator; Barbara Simcoe, DMME State Energy Program Manager; Evie Christopher, DMME Administrative Staff Assistant; Matt Gooch, Assistant Attorney General; George Hagerman, Virginia Tech Advanced Research Institute; Susan Sorlie, Virginia Tech Advanced Research Institute; Jon Miles, JMU VA Center for Wind Energy

VOWDA APPOINTMENTS

Two new members were recently appointed by Governor McDonnell: Douglas Faulkner, President of Leatherstockings LLC, a consulting firm; and Ronald Rosenberg, Professor at William and Mary Law School. Four members on the board were reappointed to four-year terms: Bob Matthias, Joan Bondareff, Brian Redmond, and Art Moye. John Jester, representative of the Virginia Commercial Space Flight Authority, resigned in December and a replacement hasn't been named.

APPR0VAL OF MINUTES

The Chair called for a motion to approve the November 13, 2013 minutes as presented. The motion to accept the minutes, by Joan Bondareff seconded by Brian Redmond, passed unanimously.

OCEAN SURVEY UPDATE: *Fugro*
Presenters: Tom McNeilan and Kevin Smith

Tom McNeilan and Kevin Smith briefed the board on the offshore geophysical regional survey that Fugro conducted this past summer in the Virginia Wind Energy Area (WEA).

Tom provided the background to this survey, which was funded by DMME ($300,000), BOEM ($300,000), and Fugro ($200,000). The purpose of the survey was to help accelerate commercial leasing and development of the Virginia WEA and offshore energy industry supply chain by reducing private development and project costs, and lowering risk. Understanding seafloor and subsurface conditions are important aspects to an offshore project. There is only basic knowledge of the character of the seafloor and subsurface of the Outer Continental Shelf (OCS) and little record of how installed structures have performed. Other than sand and gravel studies, there has been no resource development activity on the federal OCS off the Atlantic Coast. BOEM's sand and gravel program model provided the opportunity for BOEM to match the state funding to try to define the physical conditions of the Virginia WEA.

Kevin reviewed the processes used and some of the findings of the geological and geophysical survey that will affect foundation selections and design for offshore wind farms in the mid-Atlantic region of the OCS.

- The survey vessel used the following systems simultaneously to examine the subsurface: multi-beam system, chirp system, side scan sonar, magnetometer, and seismic reflection system. Three sets of vessel track lines were used in the survey: regional, to develop framework of WEA; met tower, for areas being considered; and seismic surveying, for a shallow hazard survey to satisfy BOEM requirements. Two streamers were used to image the subsurface, one for each of the shallow and deeper sections.
- The channels in the upper right of the WEA were mapped out to show depth and geometry. These channels/drainages, created during the glacial period, were masked by sand as the sea level rose, and subsequently infilled with mostly soft clay deposits, sand or gravel. Clay infilled channels can drive up the costs of the foundation systems, which are 30% of the offshore wind farm costs. Knowing where these channels are in the mid-Atlantic WEA is important for developers to determine costs and develop wind turbine foundation concepts.
- From a foundations standpoint, the water depths on the western most part of the site are within monopole depth range. The deeper depths found elsewhere are more suited for tripod/jacket structures.
- Survey report products include elevation maps of the different geologic areas, which can be used for a developer to evaluate how deep pile foundations might extend for turbines.

Tom shared key takeaways from this survey:

- The regional geophysical survey successfully advanced definition and appreciation of the physical seafloor and subsurface conditions and their project development implications. It helps counter the expectation that the WEA is uniform, which is important so commercial development isn't based on one simple model. The availability of the NOAA 2011 multi-beam dataset added high value to the G&G survey 2013 bathymetry data. It identified how different

features on the sea floor move over time, which is important for determining placement and burial depth of the export cable and predicting scour around foundations. When the WEA is developed, detailed data gathered from this survey will provide a tremendous amount of information relative to the stability of the sea floor.

- The offshore Wind Energy Area of Virginia is now one of the most defined areas on the Atlantic OCS relative to data that will be used to determine sediment mobility. The survey establishes that it is possible and appropriate to deploy all the geophysical systems concurrently, providing much more information that can be used by the developer to manage risk and plan for future development.

Board members commented that it was important to coordinate the use of future public resources to focus on objectives and priorities that promote wind energy in Virginia. The final survey results will be public. See the full PowerPoint presentation on the VOWDA website at: http://wind.jmu.edu/offshore/vowda

VIRGINIA OFFSHORE WIND COALITION UPDATE

Presenter: Jeff Keever
Also present: Chuck Decuir, VOW Chairman

Trade Mission

Jeff Keever showed slides and shared some highlights of VOW's recent European trade mission in early November 2013. The group first traveled to Antwerp and Hoboken, Belgium, where they met with various experts in the offshore wind industry (risk and insurance, project finance, etc.) and observed actual construction and fabrication of turbines. They also met with someone in a leadership role on multiple wind projects who shared his experiences (emphasizing the need for proper government policy to help the industry grow) and insight on development strategies (risk identification, segregation of certain aspects of contracting, finance, insurance, construction, and vessel chartering).

They also traveled to Bremerhaven, Germany, where they toured the Port of Bremerhaven and met with a company that installed tripod foundation bases and wind turbines, as well as a manufacturing facility. The BIS Bremerhaven Economic Development Group gave a presentation that included an overview of the Port complex and how this maritime city, at one time in economic decline, is now becoming the center of offshore wind production in Germany. VOW presented an overview of the Coalition and Virginia's goals to become the supply chain hub and the current status of offshore wind, in general, in the U.S.

While the Europeans are easily two decades ahead of where we are in the U.S., VOW saw many similarities and opportunities that have been discussed for Virginia becoming the supply chain hub for the Atlantic Coast offshore wind industry.

Important takeaways from this trip based on lessons learned in Europe: There needs to be a more uniform approach at the start of this evolving process. Before a contract is executed -- identify all risks on the front end of the project, and segregate certain aspects of the installation and the development.

Funding Request Update

VOW Coalition members met with Virginia Senator Frank Wagner last week and will continue to meet with other members of the money committees to garner support for the coalition's request for about $3.7 million in state funding for an industry needs assessment and study of how well those needs are met by existing port and other logistical assets, as well as a marketing effort to promote unique assets and attributes that make Virginia an attractive location for a Mid-Atlantic offshore industry hub, and a workforce development initiative.

JOBS AND ECONOMIC DEVELOPMENT IMPACT MODELING FOR OFFSHORE WIND

Presenter: Jon Miles, Director, Virginia Center for Wind Energy

Jon presented an overview of a study recently completed at JMU's Center for Wind Energy that estimates the economic impacts associated with offshore wind power developed in the Mid-Atlantic region; Delaware, Maryland, New Jersey, Pennsylvania, and Virginia. The study, funded by DOE, used the new Offshore Jobs and Economic Development Impacts (JEDI) model developed by the National Renewable Energy Laboratory. The JEDI model is built around three major variables: market and deployment, regional investment, and cost reduction. Three distinct scenarios for offshore wind energy on the Mid Atlantic, running from 2015 to 2030, were created and JEDI was run for each year. Jon distributed a fact sheet, *Economic Impacts from Offshore Wind in the Mid-Atlantic Region*, recently received from DOE that included the results of the Mid-Atlantic study. This fact sheet will be posted to the VOWDA website when it becomes publically available. See the full PowerPoint presentation on the VOWDA website at: http://wind.jmu.edu/offshore/vowda

REGIONAL RESOURCE CENTERS

Presenter: Jon Miles, Director, Virginia Center for Wind Energy

Jon informed the Board that the JMU Center for Wind Energy, partnering with Kearns & West, Inc. and the Mid-Atlantic Renewable Energy Coalition, submitted a proposal for a Mid-Atlantic Regional Wind Resource Center to DOE in November. Last year DOE announced a plan to fund a series of six regional resource centers. Twelve applications were submitted. The Mid-Atlantic center would:

- Address legal, regulatory, and financial challenges through a regional regulatory toolkit – a repository of existing resources and access to resources to develop new regulatory tools.
- Provide information and direct support to priority local and regional decision makers.
- Advance the distributive community wind model.
- Provide education outreach regarding need to develop transmission.

It is envisioned that entities like VOWDA and VOW could use this center as a comprehensive web-based "one-stop shop" of resources and tools. Areas of interest could be polling (legal and regulatory), data analysis, visualization, and dissemination.

VOWDA RESOLUTION TO STATE CORPORATION COMMISSION

Joan Bondareff reviewed VOWDA's recommendation at the November meeting that the Board support Dominion's cost recovery filing to the State Corporation Commission (SCC) for approvals required to support the VOWTAP project, assuming it will be approved by DOE. The resolution, drafted by Joan and the DMME staff, was presented to the Board for review and input. There was discussion why the Board was taking this action now since the project is so far in the future. Mary said that DOE will announce which projects are selected to receive the award in May 2014; and when making its decision, DOE will look at all aspects including state support. Brian commented that the resolution can serve as a concrete step for VOWDA to formulate a policy and set out a plan that everyone can work towards. Joan thought it would be beneficial for VOWDA to go on record sooner than later since Virginia has a new Governor, and for federal funding opportunities. The board voted to approve the Resolution with the edits as discussed at today's meeting. Doug Faulkner and Mary Doswell abstained from voting. A copy of the final resolution will be sent to the SCC and a copy will be made available on the VOWDA website.

DMME RFP UPDATE

Presenter: Al Christopher, DMME, Director of Energy Division

Al reviewed four topic areas to be addressed in the proposed Request for Proposals (RFP) on how the state can spend approximately $1 million in state funds provided in the current budget, and possibly additional matching funds from federal agencies and the private sector, to position Virginia with a competitive advantage in attracting the offshore wind industry.

1. Remote, Met-ocean and Environmental Monitoring: additional site characterization
2. Fisheries Assessment and Planning Research
3. Phase 2 of Ocean Survey (possible cost share with BOEM): additional geophysical and geotechnical work that is not project specific but that would be of use and of value on a broader scale to inform wise development and reduce costs of foundations, maintenance and operation of turbines, and the installation of the electricity export cable.
4. Collection of data and analysis to demonstrate economic benefits and the rate payer interest and willingness to support the wind industry.

DMME arrived at these four topic areas through a combination of sources:

- Satisfy language attached to the money that it be used to leverage private and federal funds to give Virginia a competitive advantage over other states in attracting the wind industry and developing the associated supply chain.
- Recommendations included in the 2013 VOWDA Annual Report and 2014 VOWDA Work Plan
- Discussions with BOEM/DOE regarding what activities would be eligible for cost share.

The RFP should be published in a couple of weeks.

VIRGINIA OFFSHORE WIND TECHNOLOGY ADVANCEMENT PROJECT (VOWTAP) UPDATE

Presenter: Mary Doswell, Dominion Virginia Power

Mary reported that Dominion has submitted the VOWTAP Research Activities Plan (RAP) to DOE. Once BOEM officially accepts the RAP, the environmental review process begins. Because of the project's tight time table, the VOWTAP schedule calls for BOEM to proceed with the environmental review even though the project hasn't yet been selected for about $47 million in additional federal funds. Dominion will submit its formal/final report to DOE in mid-February and make an oral presentation to DOE in April. Decisions will be announced in May.

PUBLIC COMMENTS

None

ANNOUNCEMENTS

The next meeting is scheduled for Thursday, April 10, 2014, location to be announced later.

ADJOURNMENT

The meeting adjourned at 1:00 p.m.