Dominion Offshore Wind – VOWDA Update

November 13, 2013
Commercial Offshore Wind Development Update

- BOEM auction September 4, 2013
  - Dominion won competitive auction for $1.6 million
  - 1 other bidder (Apex) participated in auction

- Lease term of 38 years
  - 5 year development
  - 33 year operations
    - 25 year commercial operating life
    - Allows for phased construction

- Area supports up to 2,000 MW
# Commercial Offshore Wind
## Schedule of Key Near-Term Project Deliverables

<table>
<thead>
<tr>
<th>Activity</th>
<th>Schedule</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received Lease</td>
<td>September 30, 2013</td>
<td>✔️</td>
</tr>
<tr>
<td>Paid bid balance</td>
<td>October 11, 2013</td>
<td>✔️</td>
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<tr>
<td>Provided financial assurance, and Dominion signed lease to BOEM October 11, 2013 with delivery scheduled for October 15, 2013.</td>
<td>October 15, 2013</td>
<td>✔️</td>
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<tr>
<td>Received executed lease from BOEM</td>
<td>October 22, 2013</td>
<td>✔️</td>
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<tr>
<td>Lease effective date</td>
<td>November 1, 2013</td>
<td>✔️</td>
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<tr>
<td>Submit first lease payment (6-months of rent)</td>
<td>November 14, 2013 (within 45-calender days of lease receipt)</td>
<td></td>
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<tr>
<td>Submit Site Assessment Plan (SAP)</td>
<td>April 22, 2014 (within 6-months of lease issuance/execution)</td>
<td></td>
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<tr>
<td>Submit Semi-Annual Progress Report during the 5-year lease assessment term</td>
<td>May 1, 2014 (First report due within 6 months of lease effective date)</td>
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<tr>
<td>Submit Construction &amp; Operations Plan (COP) - Survey</td>
<td>November 1, 2014 (within 12-months of lease effective date)</td>
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</table>
Commercial Offshore Wind Development Update

- Lease kickoff meeting being scheduled for early December at BOEM’s office
  - Objectives include discussion regarding lease requirements, milestones, Site Assessment Plan and Construction & Operations Survey Plan

- DMME Request for Information (RFI)
  - DMME released an RFI on September 27, 2013 “to leverage private and federal funding for increased data gathering to give Virginia an advantage over competing states in attracting the offshore wind industry to Virginia.”
  - Dominion submitted a response on November 8, 2013
VOWTAP Project Overview
Concept & Team

- Two 6 MW Alstom turbines on innovative foundations
- Federal Research Lease, adjacent to commercial development
- Experienced project team
Department of Energy
Advanced Technology Demonstration Projects

DOMINION
2 x 6MW, IBGS foundations, Federal waters off Virginia

UNIVERSITY OF MAINE
2 x 6MW, Floating semi-sub, Maine State waters

STATOIL NA
4 x 3MW, Floating spar, Federal waters off Maine

FISHERMEN’S ENERGY
5 x 5MW, Monopiles, New Jersey State waters

BARYONYX
3 x 6MW, Jacket foundations, Texas State waters

PRINCIPLE POWER
5 x 6MW, Floating semi-sub, Federal waters off Oregon

LEEDCO
9 x 3MW, Icebreaking foundations, Great Lakes (Erie) off Ohio
Project site directly adjacent to Dominion’s Commercial Wind Energy Area
Milestones

1. DOE Selection of VOWTAP for 50% Front-End Engineering & Design (FEED)
2. DOE Selection of 3 Projects to Proceed with 100% FEED and Construction
3. SCC Approval of Cost Recovery
4. Commissioning
Innovations and Lowering Cost of Energy

- Alstom 6 MW offshore wind turbine key to lowering cost of energy
  - LM 73.5-m GloBlade one of the largest in world
  - PureTorque™ and Permanent Magnet Direct Drive (PMDD) system

- Innovative Foundation and Installation Methods

- Systems Level Design
  - Hurricane design
  - Wake effects and wind farm controls

- Operations and Maintenance Strategies
  - PMDD and PureTorque™ design
  - Supervisory Control and Data Acquisition (SCADA) and Condition Based Monitoring (CBM)
VOWTAP Key Progress and Next Steps

- Preparing for Down-select
  - Finalizing 50 percent FEED design
  - Finalizing testing and data collection plan
  - Finalizing vessel strategy
  - Progress on fabrication plan
  - Submitted PJM Queue application in October

- Regulatory Pathway
  - Research lease process moving forward
  - General Activities Plan development
  - Marine surveys completed in June
  - Avian surveys ongoing
  - Public engagement - Open House in August
VOWTAP European Meetings

Alstom Turbine Assembly Facility
St Nazaire, France

Alstom 6MW Prototype
St Nazaire, France
VOWTAP European Meetings