Offshore Wind Summit

September 25, 30, and October 7, 2020

National Governors Association Center for Best Practices & The Embassy of Denmark
Introductory Remarks

Gina Raimondo, Governor, State of Rhode Island
Ports & Infrastructure - Introductory Remarks

Jessica Rackley, Energy & Environment Program Director, NGA Center for Best Practices
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Today’s Virtual Meeting: Zoom Controls

The Zoom menu bar appears at the bottom of the Zoom window once the meeting begins.

If you don’t see the menu bar, move your mouse slightly and the bar will appear.
Introduction to the Day – Offshore Wind Update

Martin Hansen, Head of Construction Offshore
US, Siemens Gamesa Renewable Energy
US Ports & Infrastructure – Issues and Options

Martin Lind Hansen
Head of Offshore Construction North America

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Martin Lind Hansen
Head of Offshore Construction, North America

With more than 20 years of construction experience, Martin has served in various leadership roles over his 10 years with Siemens Gamesa’s Offshore Business Unit. Martin is currently leading the development of the offshore construction organization in the US to support SGRE’s pipeline of projects.
Offshore by the numbers

~16 GW
Installed¹

~6,000
Employees

€3.5 B
Revenue²

€6.5 B
Backlog²

2.1 GW
Order entry²

Strong global, manufacturing footprint

Excellence in project execution

Over 1,000
Direct Drive offshore turbines installed

¹ As of September 2020 | ² As of September 2019 (end of FY19)
Generations of Offshore Direct Drive

<table>
<thead>
<tr>
<th>IEC Class</th>
<th>SWT-6.0-154</th>
<th>SWT-7.0-154</th>
<th>SG 8.0-167 DD</th>
<th>SG 11.0-200 DD</th>
<th>SG 14-222 DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power</td>
<td>6 MW</td>
<td>7 MW</td>
<td>8 MW</td>
<td>11 MW</td>
<td>14 MW</td>
</tr>
<tr>
<td>Blade length</td>
<td>75 m</td>
<td>75 m</td>
<td>81.4 m</td>
<td>97 m</td>
<td>108 m</td>
</tr>
</tbody>
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What Makes a Great Harbor for OSW?

**Offshore characteristics**
- Strong seabed enables vessels to jack up
- Sufficient water depth with a minimum current and soil erosion
- Close to the OSW lease areas

**Quay and Harbor areas**
- High bearing capacity quays and areas, with electrical utility setup
- RO-RO ramp in close distance to loadout quay (or a mobile ramp for US facilities)
- Storage area in close distance to loadout quay

**Harbor Logistic**
- Port management provider who can offer stevedoring, fuel supply and wastewater management for vessels, mobile cranes, and transport equipment
- Flexible area and quayside lease agreements
Types of Harbors

Installation and/or preassembly harbors

Can be provided by customer or selected by Siemens Gamesa

Scope of work for preassembly harbor:
- Receive parts – tower segments, blades, nacelles
- Assembly of towers
- Preassembly and commissioning of nacelles
- Preassembly of rotors
- Load out to installation vessel.

Port of Esbjerg, Denmark

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Types of Harbors

**O&M harbors**

Can be provided by customer or selected by Siemens Gamesa

Scope of work for O&M harbor:
- Harbor crew transfer vessels – deep water berth if using SOV
- Storage space for parts
- Workshops
- Warehousing

Port of Grimsby, UK

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Types of Harbors

Manufacturing harbors

Selected by the OEM or other Tier 1 Supplier

Scope of work for manufacturing harbor:
- Component fabrication
- Component assembly
- Storage space for completed components
- Warehousing
- Ro-Ro or Lo-Lo to an oceangoing vessel

Nacelle manufacturing in Cuxhaven, Germany

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Lease Areas and Ports – Atlantic Coast

- Many new port developments to support the OSW industry have been announced and are in various stages of commitment and development

- Port infrastructure in the US will take a distributed, networked approach to serving the industry
  - Space limitations make megaports difficult to site
  - Bridge/height constraints
  - State-based policies as market drivers

- Significant investment will be required to upgrade existing facilities or build new facilities

- Ports and harbors are infrastructure – long-lived assets that require public-private partnerships to succeed

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Beyond Ports

Other Infrastructure and Transport Needs

Utility Connections
Road & Bridge Upgrades
Rail Access
Vessels
Cranes

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The Race is On – for capital, capacity, and commitments

- GWEC projects more than 200 GW of new offshore wind capacity to be added globally by 2030
- Includes over 6 GW of new floating wind in deeper waters
- 900,000 new jobs created globally
- Turbine sizes will outgrow some of the existing vessel fleet and infrastructure
Panel Discussion on Ports & Infrastructure

Moderator: Jay Borkland, Senior Engineering Manager - Lloyd’s Register Energy Americas Inc.

Panelists:
- Doreen Harris, Acting President and CEO - NYSERDA
- Brian Sabina, VP of Economic Transformation - New Jersey Economic Development
- Scott Viciana, VP Business Development - Ventower Industries
- Sidney Florey, President - DEME Offshore US
State Breakout Discussions on Ports & Infrastructure
Establishing an Offshore Wind Market – The Role of Infrastructure and Federal Policy

Bob Blue, EVP, Co-Chief Operating Officer, President - Dominion Energy
State Report Out & Closing