Goals of the study

Evaluate the readiness of Virginia’s ports to host manufacturing and staging activities

Develop onshore site build-out scenarios for manufacturing

Provide feedback on Virginia’s value proposition

Deliver insights from UK and European experience
10 tons

350 tons
We have completed our port readiness evaluation

There is a **big opportunity** for Virginia ports

More than 1500 sustained manufacturing jobs
More than a billion dollars in annual turnover
We have completed our port readiness evaluation

There is a **big opportunity** for Virginia ports

Our advice: Be **proactive but cautious** and watch for the tell-tale **market signals**

This study provides a **roadmap**
Study methodology

- Define port requirements; ‘future-proof ‘wherever possible
- Cast a wide net and perform initial screening of ports
- Identify required infrastructure upgrades and develop implementation estimates
- Develop port utilization scenarios
- Make estimates of permanent direct job creation
- Perform regional ports analysis (high-level)
- Create a road map for Virginia
Ports evaluated

Virginia Port Terminals Evaluated For Readiness to Support Offshore Wind

Virginia DMME Port Readiness Evaluation

Norfolk, Virginia
Project No.: 6825-001

125 Broad Street, 5th Floor
Boston, MA 02210
Phone: 617-728-0070

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## Screening Analysis

### Summary

<table>
<thead>
<tr>
<th></th>
<th>Portsmouth M.T.</th>
<th>Newport News M.T</th>
<th>Cape Charles Harbor</th>
<th>Lamberts Point</th>
<th>Peck M.T.</th>
<th>BASF James City</th>
<th>Gravel Neck</th>
<th>Virginia Renaissance</th>
<th>Steel St. Chesapeake</th>
<th>BASF Portsmouth</th>
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<tbody>
<tr>
<td><strong>Blades</strong></td>
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*Note: The table entries indicate the presence or absence of components at each location.*
## Port upgrades: An overview

<table>
<thead>
<tr>
<th>Activity</th>
<th>Portsmouth Marine Terminal</th>
<th>Newport News Marine Terminal</th>
<th>Peck Marine Terminal</th>
<th>Virginia Renaissance Center</th>
<th>BASF Portsmouth</th>
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</thead>
<tbody>
<tr>
<td>Blade manufacturing</td>
<td>Quay strength improvements</td>
<td>Quay length extension</td>
<td>Quay strength improvement</td>
<td>Major dredging New pier</td>
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<td>Generator manufacturing</td>
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<td>Quay strength improvement</td>
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<td>Nacelle assembly</td>
<td>Quay and ground strength improvements</td>
<td>Minor dredging</td>
<td></td>
<td>Major dredging New Pier</td>
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<tr>
<td>Tower manufacturing</td>
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<td>Ground strength improvements</td>
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<td>Foundation manufacturing and staging</td>
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<tr>
<td>Submarine cable manufacturing and load-out</td>
<td>None</td>
<td>Minor dredging</td>
<td>None</td>
<td>Major dredging New Pier</td>
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<td>Construction staging</td>
<td>Quay and ground strength improvements</td>
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<td>Major dredging New Pier</td>
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## Port utilization scenarios

<table>
<thead>
<tr>
<th>Story</th>
<th>Scenario</th>
<th>Ports</th>
<th>Implementation cost</th>
<th>Construction jobs (FTE-years)</th>
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</thead>
<tbody>
<tr>
<td><strong>Super-port</strong></td>
<td>1</td>
<td>Portsmouth Marine Terminal</td>
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<td></td>
<td>2</td>
<td>Portsmouth Marine Terminal</td>
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<td></td>
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<td>Newport News Marine Terminal</td>
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<td>Cluster ports</td>
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<td>Portsmouth Marine Terminal</td>
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<td></td>
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<td>Peck Marine Terminal</td>
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<td></td>
<td>4</td>
<td>Newport News Marine Terminal</td>
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<td>37.1</td>
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<td></td>
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<td>Peck Marine Terminal</td>
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<td><strong>Distributed port network</strong></td>
<td>5</td>
<td>Portsmouth Marine Terminal</td>
<td>$20 million to $50 million</td>
<td>64.0</td>
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<tr>
<td></td>
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<td>Newport News Marine Terminal</td>
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</table>
### Regional Port Assessment

What ports would compete with Virginia ports to support offshore wind projects?

#### Methodology

- Cast a wide net, looking for ports that could host multiple activities
- Apply the same screening process
- Understand more about ongoing and planned infrastructure upgrades

#### Findings

- Poulsboro, NJ could host 2-3 activities and has recently been upgraded with an eye toward offshore wind
- Baltimore (Sparrows Point) has potential to compete for some activities
Recommendations
A roadmap for Virginia

- 3 leases granted; more expected ("round 1")
- First projects complete consent applications
- New lease areas announced ("round 2")

<table>
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<tr>
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<td>Make the case (socioeconomics)</td>
<td>Develop a port plan</td>
<td>Monitor other ports</td>
<td>Create a prospectus</td>
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A roadmap for Virginia

- 2015-2017
  - Make the case (socioeconomics)
  - Make a plan
  - Monitor other ports
  - Create a prospectus

- 2018-2020
  - Complete engineering and permitting
  - Confirm the time line

- 2021-2023

- 2024 and beyond

- First projects reach FID (“round 1”)
- First projects complete consent applications
- New lease areas announced (“round 2”)
- Lease awards (“round 2”)
- Consent applications complete (“round 2”)
- New lease areas announced (“round 3”)

3 leases granted; more expected (“round 1”)
A roadmap for Virginia

2015-2017
- Make the case (socioeconomics)
- Make a plan
- Monitor other ports
- Create a prospectus

2018-2020
- Complete engineering and permitting
- Confirm the time line

2021-2023
- Secure inward investment
- Complete port upgrades

2024 and beyond
- Build factories and ramp-up production

- First projects reach FID (“round 1”)
- First projects installed (“round 1”)
- Lease awards (“round 2”)
- Projects reach FID (“round 2”)
- Projects installed (“round 2”)
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3 leases granted; more expected (“round 1”)
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A roadmap for Virginia

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