

Analysis of Maryland Offshore Wind Supply Chain Capabilities

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Development

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About the Authors

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Executive Summary

Maryland currently has the embedded industrial capability to capitalize on, and perhaps command, the upcoming offshore wind economy that will develop in the Atlantic. Over 6 gigawatts (GW) of projects have been announced off of the Atlantic Coast, 3 GW in the Mid-Atlantic and 1 GW off of Maryland; a \$10 billion market in 10 years which can be captured by Maryland's economy, given implementation of the best strategies. Maryland's unique combination of necessary capabilities to serve this market gives it a comparative advantage to other states that will compete for this new economy. Taking preemptive steps and implementing the right strategy will enable Maryland to become the destination of choice for the offshore wind industry.

Maryland has ports close to the highest level of steel supply capability; unmatched anywhere else on the Mid-Atlantic or Northeast seaboard. It can enhance this capability by attracting shipbuilding operations, wind turbine OEMs and services, many of which already reside in Maryland. By combining these operations, Maryland can become the leading site for offshore wind in the Eastern US, expanding its services beyond Maryland's wind farms, and fully capitalizing on the potential multi-billion market.

Of the most necessary capabilities, Maryland has robust steel production and maritime services. Maryland has a multitude of promising steel suppliers, the most promising being RG Steel at Sparrows Point. In terms of port capability, Dundalk Marine Terminal at the Port of Baltimore has the ability to begin staging for components. In the long run, Sparrows Point has many of the best characteristics to establish offshore wind operations, but will require some investment to become a viable working port.

Maryland also has supply capability for electronics, composites, engineering, construction and other necessary services from a wide number of potential supply chain participants across the state. It has resident firms which range from large multinationals to smaller concerns. Engineering, labor and construction services can likely be supplied by resident companies such as Cianbro or Bechtel, who are large and offer extensive experience in civil engineering. Electronics components can be supplied by large corporations such as Eaton and Northrop Grumman. The inclusion of these corporations in the supply chain will enable Maryland to catalyze its industry and allow small, or new, firms to expand alongside larger ones as suppliers to the offshore wind value chain.

In order to catalyze this industry to its optimal extent, we recommend a strategy of clustering; a geographic agglomeration of dynamically interconnected companies which can serve the total needs of an industry. Clusters offer many benefits, including increased productivity, capability and reach through scale and scope efficiencies. In addition, clusters boost regional competitiveness and drive innovation as firms share knowledge. Maryland can enhance the cluster's innovation capabilities further through the integration of its adjacent markets: defense, aerospace, bioscience, cyber security and academia

This strategy requires coordination and leadership. Uncoordinated attempts can result in failure of the region to maximize its economic potential, or gain much market share at all. Strength in numbers, through cooperative behavior, will be greater than individual uncoordinated attempts to develop this industry.

Actions to Maximize Value Capture – Promote Clustering Policy

Maryland has demonstrated the highest level of sufficiency to fully service the offshore wind value chain. However, it will come under severe competitive pressure to gain a commanding hold of this industry versus other states and regions on the US Eastern Seaboard. Thus, Maryland must be aggressive in its strategies to promote offshore wind industry growth within the state, gain first-mover advantage and crowd out competitors.

Maryland state government and industry have already taken positive steps to facilitate future clean technology industry growth, such as having an aggressive Renewable Portfolio Standard (RPS), engaging with key stakeholders – trade unions and employers – and studying the state’s capabilities to compete in a global industry.

To capture long-term offshore wind project value for port operation, Kinetik Partners recommends that the state of Maryland engage with industry to catalyze the development and improvement of port infrastructure. We propose a two-tiered strategy: a near-term tactical approach to establish operational momentum and a longer-term cluster development strategic approach. For the near-term tactical approach with execution over the next 1-3 years, we recommend seeking to locate port operations for an upcoming offshore wind park at Dundalk Marine Terminal or Sparrows Point Shipyard Industrial Complex (SPSIC), with Dundalk Marine Terminal being in a higher state of readiness. For the long-term strategy beyond 3 years, we recommend establishing operations at Sparrows Point.

These two strategies are consistent with the two primary ways that port operations for offshore wind are developed: the developer based model and the industrial and innovation cluster based model for offshore wind farm port development.

Cluster development action items

The state of Maryland, its delegates and agencies should enact supportive policies to support offshore wind if a major steel and port centric cluster is going to be developed. Local demand conditions need to be strong, so all possible measures should be utilized to ensure that offshore wind projects are built in water off of Maryland. A small developmental project (~25-40 MW) in state waters may be helpful to catalyze larger developments farther from land with better wind. Federal incentives are still critical, especially considering the expiry of the ITC and grant in lieu of ITC program established by the American Recovery and Reinvestment Act of 2009. Maryland congressional representatives should be united in supporting renewal based on the potential economic benefits for Maryland.

Take action early: The establishment of a cluster to serve offshore wind will be under high competitive pressure from other states and coastline areas. Thus, it is highly important to gain first-mover advantage to serve the burgeoning offshore wind industry. There are many ports in states with sufficient industrial capabilities (although none with the apparent logistical advantage of Maryland and RG Steel’s capability via its direct proximity to the Chesapeake). Being first to serve this

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industry will allow Maryland to prevent new, marginal clusters from taking market share, as well as attracting further investment and co-location to the cluster as other suppliers choose to enter the industry. Thus, the first mover gains from its own inertia.

Collaboration: Any investment in Maryland's infrastructure to support the offshore wind industry will require high levels of collaboration and engagement with key stakeholders. In addition to the previously-mentioned firms, it is critical to establish relationships with union and labor leadership, such as the United Steelworkers, Dockworkers, Teamsters, and Maryland state higher education and technical school organizations. These stakeholders are key to supplying the skills and talent necessary to serve the employment needs of this industry. Developing relationships across the different levels of the value chain, such as through a trade organization, will be key in developing critical mass and attracting more value-adding supply chain members to the area.

Partner with European offshore wind companies: Knowledge and technology transfer from European offshore wind operations is vital to the long-term success of the US offshore wind industry. Maryland can put itself in an advantageous position by partnering with manufacturers such as Siemens or Vestas to build the necessary knowledge to create the premier offshore cluster location in the US. In addition, Maryland should engage the largest operators of European offshore wind farms and connect them with large East Coast utilities and utility groups, such as the Edison Electric Institute.

Investment in infrastructure: Investing in capability to build the high value components of the offshore wind value chain is the most critical action for capturing the opportunity in offshore wind. As such, it is incumbent upon the state of Maryland to support the efforts of its private firms in their development of ventures and expansion of businesses, support development of partnerships between Maryland and outside companies, or to attract outside companies in order to capture this opportunity. The development of cluster development around SPSIC in close proximity to the supply capabilities of RG Steel receives our strongest recommendation: expand the casting, plate making, rolling and welding capabilities at Sparrows Point, along with the development of onshore assembly from the numerous wharves surrounding the area. Additionally, there is opportunity for the development of ship and barge-making capabilities in Maryland, which are specifically designed to service the offshore wind industry. In addition, RG Steel's capability and the SPSIC can cooperatively attract other manufacturers who can serve the offshore wind supply chain and further strengthen the cluster. Lastly, as these steel and ship oriented operations take root, Maryland should engage wider-scoped industries, such as electronics and EPCs, to begin operations to further enhance the full capabilities of the supply chain.

Transformational projects: Develop a high visibility transformational project that would attract public and institutional attention. For example, a multi-megawatt project to provide energy to the DC Metro, Baltimore or other nearby load centers, or the development of a fully functional development and validation park offshore are clear messages to industry. It is highly important to facilitate the operational capability of the cluster early, thus developing demonstration sites will be highly valuable.

Standards: Maryland should engage early with standards committees and resident industries to gain early advancement and input into the technical specifications which are required for offshore wind material, specifically steel. It is in Maryland's best interest to make sure that the requirements are both fair to its industries as well as communicated early enough for its industries to adapt to best supply practices. This can be done through cooperation with the region's academic institutions as well as engineering standards boards

Aggregation of operations at Sparrows Point: While Maryland has a handful of strong players in the steel fabrication industry, a significant number of smaller firms could positively support the growth of the industry. We propose the development of an industrial consortium or collaborative enabling the support of these firms at the consortium level. An active consortium could develop more buying power for its members through aggregated buying and economies of scope through closer ties by adjacent companies in the supply chain. This will increase business while decreasing the cost of material inputs.

Integrated operations with RG Steel capabilities: RG Steel's production capability should be the anchor of any investment in offshore wind supply. Its ability to provide micro-runs in the ramp up to full production is a strong asset in developing an offshore wind steel production cluster, and its long-term ability to engage in foundry operations is a strong asset as well. In addition, Maryland has embedded machining and fabrication knowledge based on its industrial composition, which should be incorporated into development of the cluster.

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