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New Jersey's Plan to Become the National Capital of Offshore Wind

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One of the offshoots of a post-COVID-19 world is the increased attention to other existential threats facing humanity that can cause serious interruptions to business as usual in America. One of those threats is climate change. New Jersey's Governor Phil Murphy and his administration have made combating climate change a key priority in the state since taking office in January 2018. Governor Murphy has arguably just unveiled his most ambitious plan to date, introducing plans in June 2020 that would make New Jersey the hub of the Eastern Seaboard's offshore wind industry by creating a centrally located wind turbine manufacturing and assembly center critical for the wind industry's growth. This article will explore how Governor Murphy plans to do this, and the potential state and federal policy and legal implications. Is this just another example of a politician greenwashing for cheap political points, or is there some substance behind this proposal that could make New Jersey the Silicon Valley of the offshore wind energy industry?

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Offshore wind energy development in the United States is still in its infancy. According to the U.S. Department of Energy (DOE), the United States has a vast offshore wind energy resource with a potential of more than 2,000 gigawatts (GW) of capacity, which is roughly double the nation's current electricity use. The DOE believes that offshore wind energy holds the promise of significant environmental and economic benefits for the United States because it is an abundant, low-carbon, domestic energy resource. Development of this potential offers the opportunity to create tens of thousands of highly skilled and highly paid jobs to states that are able to harness the supply chain needed to build these projects. It could ensure continuous prosperity for the state and local economies that host these manufacturers and developers.

As costs for harnessing renewable energy continue to decrease, commercial, residential, and industrial rate payers all along the Atlantic coast will benefit from offshore wind development. New and international players such as major energy producers, utilities, and manufacturers continue to enter the offshore wind market. This increased competition can only help to lead the industry forward. New Jersey's geographical situation in the middle of the Eastern Seaboard will make it a natural location for manufacturing and staging these large offshore wind turbines for shipment to offshore wind sites throughout the outer continental shelf. However, the regulatory and political headwinds that have stunted the industry's growth will continue to be an issue unless additional steps are taken to remove these impediments.

Offshore Wind Industry: A Global, National, and Regional Perspective

According to the Global Wind Energy Council, the global offshore wind market has grown on average by 24% annually since 2013. Worldwide installations total 29.1 GW, which only represents 5% of total global wind capacity. At the end of 2019, Europe had 75% of

the world's offshore installations and was the largest offshore market. Global Wind Energy Council, *Global Offshore Wind Report 2020* (Aug. 5, 2020).

The International Energy Agency (IEA), an intergovernmental organization that focuses exclusively on energy policy, predicts that global wind capacity additions in 2020 will slow dramatically due to the COVID-19 crisis. The IEA predicts that onshore wind projects will be harder hit than offshore wind projects because the runway and timeline for financing and development of onshore wind capacity are much shorter, meaning these onshore projects can be canceled or postponed much more easily. Offshore wind projects in the development pipeline before the COVID-19 crisis have a better chance of surviving in these times of economic uncertainty and volatility in markets. Most offshore wind projects in the pipeline, scheduled to be commissioned in 2020–2021, are either partially commissioned or at an advanced stage of development. The pandemic may still impact offshore wind projects because pre-development work, like permitting and environmental approvals, may be delayed.

According to the IEA, offshore wind experienced 32% growth in 2017, but then only 20% growth in 2018. IEA, *Offshore Wind* (June 2020). Offshore wind deployment will need to accelerate dramatically to meet electric generation targets called for in the IEA's Sustainable Development Scenario (SDS), which outlines a major transformation of the global energy system. Cost reductions, technology improvements, and rapid deployment have already been achieved in Europe, but these gains need to be realized in other regions outside of Europe.

In the *Offshore Wind Outlook 2019*, IEA analyzed offshore wind potential by country. The IEA concluded that offshore wind sites could provide enough electricity per year to meet global electricity demand in 2040, although there are still a number of regulatory hurdles facing the industry before this type of widespread deployment will be realized. The IEA has already seen evidence of rapid offshore technology maturation in upcoming years, with auction prices seen in the European Union (EU) that show cost reductions of upwards of 50% in the next five years due to economy-of-scale advantages, standardization, and clustering.

The *Offshore Wind Outlook 2019* predicts that offshore wind power will continue to expand over the next two decades as global decarbonization and reduction of air pollution efforts continue to progress. The United States currently has the second-highest offshore wind potential, behind the EU.

The U.S. Department of Energy has stated that the United States has significant potential for offshore wind and estimated that there is potential for over 2,000 GW of electricity off U.S. coasts. Office of Energy Efficiency & Renewable Energy, U.S. Dep't of Energy, *Computing America's Offshore Wind Energy Potential* (Sept. 9, 2016). However, as of September 2020, the offshore wind sector in the United States is small, with only one operational offshore wind facility off the coast of Rhode Island, the 30 megawatt (MW), five-turbine Block Island Wind Farm, which began commercially operating at the end of 2016. The Block Island Wind Farm is operated by Ørsted, a Danish developer.

According to the American Wind Energy Association, there are currently 15 active federal commercial leases for development of offshore wind in the United States. These 15 projects have the potential to generate roughly 25 GW of wind capacity. Ohio and Maine are currently finalizing plans to develop two offshore wind demonstration projects.

There is a coastwide effort to expand offshore wind by first increasing renewable targets for offshore wind and then getting projects underway. New Jersey has a goal of 7,500 MW by 2035, New York is targeting 9,000 MW by 2035, and Virginia is targeting 5,200 MW by 2034. All three of these states are in advanced stages of having their first project online in the next few years, with significant expansions coming in the next decade.

Governor Murphy's Plan to Build the Hub of the Eastern Seaboard's Offshore Wind Energy

It is unmistakable that New Jersey's Governor Murphy has made environmental issues one of the pillars of his administration, with a goal of transitioning away from carbon-based energy to 100% clean energy by 2050. In October 2020, the Murphy administration called for transformative actions to meet the New Jersey legislature's parallel goal of reducing greenhouse gas emissions by 80% by

2050. This ambitious goal is summarized in the *80x50 Report* published in October 2020 by the New Jersey Department of Environmental Protection, which gives a sector-by-sector analysis of various pathways for meeting this goal. As a result of market forces, New Jersey has already reduced emission by 20% below 2006 levels, but on the current trajectory, the *80x50 Report* estimates that emissions could be higher in 2050 than they are today at just 12% below 2005 levels. As such, new initiatives will be needed to reduce emissions. The *80x50 Report* lists development of solar, wind, and other zero-carbon energy-generating sources to meet projected growth of electric demand by 2050, while simultaneously reducing greenhouse gas emissions.

The *80x50 Report* builds on New Jersey's 2019 Energy Master Plan, which outlines in detail the energy sector's plan to achieve 100% clean energy by 2050. Both the *80x50 Report* and the 2019 Energy Master Plan are major components of the Murphy administration's comprehensive climate policy initiatives, which focus primarily on resilience, adaptation, and mitigation to strengthen New Jersey against adverse climate impacts.

At the heart of Governor Murphy's green agenda is developing a port in southern New Jersey with easy access to the Atlantic Ocean in order to support the development of offshore wind up and down the Eastern Seaboard. In June 2020, Governor Murphy introduced plans for the first port dedicated to serve the offshore wind industry, known as the New Jersey Wind Port. The New Jersey Wind Port will be located on an artificial island in Lower Alloways Creek Township, Salem County, New Jersey, on the eastern shore of the Delaware River. The goal for this port is to assemble the turbines for offshore wind farms not only off the coast of New Jersey, but all wind projects on the Eastern Seaboard. The New Jersey Wind Port is expected to create 1,500 permanent jobs and generate \$500 million in annual economic activity.

The New Jersey Wind Port is estimated to cost between \$300 and \$400 million to build, with the New Jersey Economic Development Authority (NJEDA) splitting the costs among public, private, and public/private financing options. According to experts, it is likely that either utility customers or taxpayers will bear a portion of these costs. Currently, the NJEDA is cooperating with the landowner Public Service Enterprise Group (PSEG) on the project. It is also worth noting that PSEG operates the Hope Creek Nuclear Generation Station at property adjacent to the New Jersey Wind Port, so the region is already home to significant industrial scale utility operations.

The site of the Wind Port is ideal given that it is located south of Delaware Memorial Bridge and free and clear of any obstructions that would prevent the turbines, which stand vertically on shipping vessels, from reaching the Atlantic Ocean. This is one of few ports on the East Coast with clear overheard access from port to sea, as well as channels deep enough to accommodate the sea vessels needed to carry the large turbines. It is also worth noting that during the 22-month selection process, the state determined that most of the existing port infrastructure along the East Coast is unable to accommodate the assembly of wind turbines.

Construction of the New Jersey Wind Port is expected to begin in 2021 and will commence in two separate phases. The first phase of construction will be on a 30-acre site developed to accommodate marshalling activities, which include assembly, storage, and deployment facilities, and a 25-acre component manufacturing site. Given their size and the number of components involved, the movement, storage, and partial assembly of a turbine require significant acreage. Finding land that can handle the weight of turbines is also a critical issue because some turbine components can weigh more than 3,000 tons. The second phase, set to begin in 2023, will add another 150 acres to the Wind Port site to accommodate additional marshalling activities and manufacturing facilities for turbine components. This additional land will be essential, as experts predict the industry will start looking beyond the current 8 MW turbines to 12, 13, and 15 MW turbines. For example, General Electric's new 13 MW Haliade-X turbine generators, which have been selected as the turbines for the Vineyard Wind 1 project off the coast of Massachusetts, have three blades that are all over 350 feet in length, or roughly the length of a football field.

Governor Murphy hopes that the New Jersey Wind Port will create thousands of manufacturing, assembly, and operations jobs, as well as hundreds of construction jobs in New Jersey. The administration also feels that this project will help achieve its goal of reaching 7,500 MW of offshore wind power by 2035 and 100% clean energy by 2050. While the governor hopes that this new port

will bring high-quality jobs and millions of dollars in investment to the state, unless and until manufacturers of cables, foundations, and other components of offshore wind relocate to the port, these goals may not be realized.

The Ocean Wind Project

The New Jersey Wind Port is needed to support the development of New Jersey's first proposed offshore wind project—the Ocean Wind Project. Both of these projects together will establish New Jersey as a leader in the development of offshore wind on the Eastern Seaboard of the United States. The fate of the offshore wind industry in the State of New Jersey rests squarely on the shoulders of these two projects.

In November 2019, the Murphy administration issued an Executive Order to increase the state's target to 7,500 MW by 2035. In June 2019, New Jersey issued the state's first offshore wind renewable energy certificate (OREC) to Ørsted to develop the 1,100 MW Ocean Wind project 15 miles off the coast of Atlantic City. The OREC program is a funding mechanism that requires a percentage of electric load to be supplied by offshore wind to support at least 1,100 MW.

This site is set to be operational by 2024, subject to permitting and other financial factors. When built, it will be the nation's largest offshore wind farm to date. The Ocean Wind Project is projected to cost \$1.6 billion and supply enough energy to power more than a half million homes. In December 2020, the New Jersey Board of Public Utilities (BPU) received a pair of proposals for a new offshore wind farm off the coast of New Jersey that could add up to 2,400 MW of offshore wind generation to the energy mix by 2027.

The Ocean Wind Project has experienced significant delays due to financial and political headwinds. The previous gubernatorial administration did not prioritize offshore wind, and prior developers have come and gone based on costs and regulatory delays. Even in the last few months, New Jersey legislators have called for a moratorium on the project until the impact to commercial fishing can be studied and Ørsted can meet the commitments it made to the New Jersey BPU. One of those commitments was for Ørsted to build a manufacturing facility in Paulsboro, New Jersey, to construct monopoles, the steel structures on which wind turbines are mounted. The lack of progress on this commitment was worrisome to locals and project proponents until December 2020, when the Murphy administration announced Ørsted is leading a \$250 million investment into this monopole manufacturing facility, which will begin production in 2023. The potential for rising energy costs is also worrying locals. Debate about infrastructure projects of this magnitude is not uncommon. Because the residents of New Jersey will subsidize the project by paying surcharges on their electric bills, it is imperative that New Jersey also sees some benefit from this project in terms of long-term employment to help expand the tax base. These threatened delays have significant impacts on the industry generally and have the potential to send a chill through the whole sector, all of which impact New Jersey's plan to be the hub of the offshore wind industry. Nonetheless, the commitment of the Murphy administration to clean energy, the announced investment in the proposed Paulsboro monopole facility, and bids for a new wind farm off New Jersey's coast are positive indicators of eventual progress.

Regulatory Framework

While cost reductions, technology improvements, and rapid deployment of offshore wind projects in Europe have paved the way for similar development around the globe, the American Wind Energy Association lists regulation as a potential hurdle for offshore wind in the United States. A complex interplay of federal, state, and local regulations creates uncertainties and costs that may pose challenges to the rollout of offshore wind. Changing priorities of administrations and subsidies provided to renewables generally also pose significant uncertainties for the industry. All industry players agree that a more streamlined process from the U.S. federal government and more coordination among the states would help the industry.

Leasing regulations also differ based on whether a project is located in federal or state jurisdictional waters. Each state that borders the Atlantic Ocean has jurisdiction over submerged lands out to three nautical miles offshore pursuant to the Submerged Land Act of 1953. The Bureau of Ocean Energy Management (BOEM), a division of the U.S. Department of the Interior, controls the federal waters seaward of the state nautical border. BOEM controls the granting of leases, rights of way (ROWS), and rights of use and easements on

the outer continental shelf for most energy projects, including offshore wind projects in federal waters. BOEM is vested this authority through the Outer Continental Shelf Lands Act, which was last amended by the Energy Policy Act of 2005.

BOEM has a number of instruments to convey leasehold interests to commercial interests. Siting and construction of offshore wind farms is conveyed by a commercial lease that grants the developer access and the operational rights necessary to produce, sell, and deliver renewable energy at these projects. Companies looking to develop offshore wind projects must also secure ROWs for the cables or pipelines needed for transmission and distribution of electricity generated offshore from the ocean to land.

Federal regulations also require an extensive environmental review before a lease can be conveyed. An offshore wind developer will need to submit some combination of the following plans before BOEM can grant approval: a site assessment plan, a construction and operations plan, and a general activities plan. All of these plans are meant to describe the development activities in enough detail to allow BOEM to make a determination as to whether the proposed development is a major federal action significantly affecting the quality of human health or the environment. If BOEM does find a project to be a major federal action, then the National Environmental Policy Act is triggered and BOEM must prepare an Environmental Assessment or an Environmental Impact Statement. Additionally, BOEM requires specific financial assurances, either a \$100,000 lease-specific bond or another approved financial assurance mechanism, before BOEM issues a lease, providing some security to BOEM, while also levying another cost on the developer. The amount of rental money BOEM can charge for the lease is set by statute and must follow a strict formula that is paid during development and commercial operation of the leased property.

While the federal regulations implemented by BOEM are necessary for all projects located in federal waters, offshore wind projects can also rely on several policy initiatives from other federal agencies to help get projects off the ground. One is the National Offshore Wind Strategy. DOE & U.S. Dep't of the Interior, *National Offshore Wind Strategy: Facilitating the Development of the Offshore Wind Industry in the United States* (Sept. 2016). Since February 2011, the DOE, through a joint effort with the Department of the Interior, has sought to promote the rapid and responsible development of offshore wind energy with the aim of reducing costs and timelines associated with offshore wind projects. The National Offshore Wind Strategy also seeks to further the understanding of the potential costs and benefits associated with offshore wind energy. Another is the National Ocean Policy Implementation Plan. Nat'l Ocean Council, *National Ocean Policy Implementation Plan* (Apr. 2013). The National Ocean Council, composed of 27 federal agencies, seeks to promote ocean economy, safety, and security and coastal and ocean resilience more broadly. The plan seeks to facilitate offshore wind by advancing mapping technology and data access. Facilitating the permitting process by increasing the information exchange between governmental agencies is also a key aspect of the plan.

Each state that borders coastal waters must establish its own leasing paradigm for submerged lands. Some states have chosen to implement policies that closely mirror the land use leasing in place for state-owned lands. Rhode Island, New Jersey, and Michigan have chosen to zone the ocean to spur development in areas that are most advantageous for the state and local economies. State approvals for leases of state-controlled submerged lands, shoreline permits, and siting of energy facilities will also need to be secured by offshore wind developers. Local governments may also have the obligation of issuing additional permits related to shoreline areas.

An offshore wind project will almost certainly trigger other federal regulations. The Coastal Zone Management Act (which also gives states an oversight role), Marine Mammal Protection Act, Migratory Bird Treaty Act, Marine Sanctuaries Act, and Endangered Species Act likely come into play as a result of development of offshore wind facilities. This is because these projects can have impacts on marine and avian wildlife, such as whales and migratory birds, as well as coastal wildlife and habitat areas. It is essential that regulators and the regulated community seek out experts and conduct the necessary studies to minimize risks and disturbances to both the environment and a project's timeline.

Looking Forward

New Jersey has established some of the most ambitious renewable energy and decarbonization goals in the nation. New Jersey recognizes that the manufacturing and staging of turbines the size of a 737 Boeing airplane requires hundreds of acres of land with easy access to the Atlantic Ocean. The New Jersey Wind Port has the potential to provide the essential onshore manufacturing

operations to help facilitate the exponential growth of the offshore wind industry in the United States in the next several decades. While regulatory and environmental challenges remain, the success of offshore projects in Europe offer encouraging models and experience for the projects in the United States. As more projects come online, especially the Ocean Wind Project off Atlantic City, the value of a manufacturing hub like the envisioned New Jersey Wind Port will grow significantly. If early U.S. offshore wind projects are any indication, and rates for offshore wind electricity continue to fall, ratepayers, local economies, and state economies can all benefit from offshore wind, and a manufacturing hub supplying the critical components for the industry will play a central role.

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