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U.S. Ports and Offshore Wind Energy Deployment

Recently, the U.S. Department of Energy has set ambitious goal to build 54 GW of offshore wind energy projects by 2030. In the mid-Atlantic, five offshore wind projects with overall capacity of 1.5GW are in the works. Port facilities play a critical role in deploying projects and can significantly affect the development of the U.S. offshore wind industry. Offshore wind turbine components are extremely large and heavy, with nacelles and foundations reaching 200 tons and 700 tons respectively. Even though the U.S. has over 300 ports, a vast majority of them are not ready to handle such large and heavy components. Significant investment in new facilities, cranes, storage areas, and reinforced quayside will be needed to ensure ports can facilitate rapid, efficient and cost-effective deployment. The German Port of Bremerhaven can serve as an example of an offshore wind hub, where political consensus and large public and private investment in supporting offshore wind construction, manufacturing and deployment has resulted in revitalization of the economically stagnant area. This can be compared with the Port of Wilmington, which has relatively small storage areas, low bridge clearance and small cranes that could potentially represent significant barriers to utilizing the Port as a primary base for deployment of multiple projects in the mid-Atlantic. Costly upgrades or potentially an entirely new staging area elsewhere may be needed. With such numerous logistical challenges and financial resources required to boost port capacity and ultimately domestic offshore wind industry, effective national policy is critical. Also, communication between port operators, developers and manufacturers and careful review of needs and constraints ports face is needed before large investments into new infrastructure can be made. Lastly, methods to assess port capacities and suggest cost-effective ways for ports to improve their facilities are needed to support development of the offshore wind industry in the U.S.