Proposed Action: P&M Offshore Wind Infrastructure Project (POWI)

Port of Coeymans History

The owner P&M Brick, LLC operating under Port of Coeymans (POC) is a privately-owned, full-service, deep water inland marine terminal with modern facilities, state-of-the-art technology and equipment, and an experienced local labor force. Located along the Hudson River 10 miles south of Albany and 100 miles north of New York City, the POC has been transformed from the Powell & Minnock Brick Company into the premier port, bridge assembly, construction, and resource and disaster hub of the Northeast with a global reach. The P&M Brick plant, founded in the late 1880's by members of the Powell and Minnock Families, was an operating brick plant until 2001 and with the site acquisition occurring in 2002.

As a major contributor to the local and state economies, the POC has invested millions over the past decade in the facility, infrastructure and equipment upgrades. The 125-acre Port provides 3,500 feet of direct riverfront access and offers the following services: stevedoring, tug and barge, break bulk, heavy lifts, warehousing, equipment rentals, staging, dredging, recycling, custom crushing, property leasing, indoor/outdoor storage, riprap waterway repair, and more. Contributing to the employment of over 500 direct POC employees, construction, and tenant employees, the Port has dock capability for ships up to 750 feet offering a 300-foot inlet channel with a 30-foot fresh water deep draft.

The Port is a critical, cost-effective approach being utilized by major regional manufacturers and construction companies with shipments of heavy lift, including offshore wind (OSW) components, and project cargo to and from destinations around the world. The Port is increasingly growing in its importance to the overall business strategies of its customers. By utilizing the NYS canal system and the Hudson River to ship product worldwide, the Port serves as the final storage facility where additional components of larger systems are combined and moved into the global markets. [1] This history as well as its unique characteristics make the Port facility a logical choice in the supply chain for the fabrication, assembly and shipping of large OSW turbine components.

Renewable Energy Initiatives

NYSERDA is leading the coordination of offshore wind opportunities in New York State and is supporting the development of 9,000 megawatts of offshore wind energy by 2035 in a responsible and cost-effective manner. Offshore wind will be a crucial step on the pathway to a carbon-neutral economy and a critical component in achieving the expanded Clean Energy Standard, whereby 70 percent of New York's electricity will come from renewable sources by 2030 under the Climate Leadership and Community Protection Act, New York's ambitious and comprehensive climate and clean energy legislation. [2] The offshore wind industry in New

York is poised for rapid expansion. In his 2019 State of the State Address, Governor Andrew M. Cuomo announced an expansion of the State's Clean Energy Standard from 50 percent to 70 percent renewable electricity by 2030. As part of that announcement, New York also increased its commitment to offshore wind from 2,400 MW by 2030 to 9,000 MW by 2035. Achieving this goal will require thoughtful planning, design, and construction of highly capable, modern, and dedicated port facilities. The Port of Coeymans site presents an opportunity to develop such an offshore wind port facility. Developing the Port of Coeymans would provide an enormous benefit to the offshore wind industry by delivering a dedicated port facility, which will be critical for the supply chain while creating new and local jobs in the Upstate New York area.

As part of the New York State Offshore Wind Master Plan (NYSERDA, 2017), the Workforce Study (BVG Associates, Stantec, GLWN, 2017) found that New York is ideally suited for sustained offshore wind workforce opportunities. According to the study, New York can realize nearly 5,000 new jobs in manufacturing, installation, and operation of OSW facilities, with a regional commitment to scale development of the resource. Nearly 2,000 of these jobs are in O&M, providing sustained career opportunities for New Yorkers as the average OSW facility life span is at least 25 years. The key to realizing this potential is to ensure that the shore-based construction and O&M facilities are developed in New York. [3]

Further Benefits of Offshore Wind

According to the NYSERDA website, "Offshore wind is an energy resource with the potential to transform New York's electricity system in ways that will have extraordinary environmental, social, and economic benefits for the State."

Greenhouse Gas Emissions Reductions

The first 2,400 megawatts (MW) of offshore wind energy developed to meet the State's target would annually reduce greenhouse gas emissions in New York State by more than five million short tons, which is the equivalent of removing nearly one million cars from the road by 2030. This accounts for approximately one-third of the expected greenhouse gas reductions as a result of new renewable energy projects that will be constructed by 2030 to meet the State's proposed clean energy goals. **This emissions-reduction benefit would amount to approximately $1.9 billion** based on the Social Cost of Carbon [PDF] originally published by the U.S. Environmental Protection Agency in 2013. NYSERDA's Offshore Wind Policy Options Paper [PDF] estimates that **this emissions-reduction benefit alone would approximately equal the cost of procuring offshore wind energy, even before accounting for the wider economic development and health benefits**.

Healthier Air

Reducing pollution by even modest amounts in the densely populated regions of New York City and Long Island can have significant health benefits. The public health impacts from nitrogen oxides (NOx), sulfur dioxide (SO_2), and fine particulate matter (PM2.5) include respiratory disease, cardiovascular disease, and premature death. By developing the first 2,400 MW of offshore wind energy, New York will avoid more than 1,800 tons of NOx, 780 tons of SO2, and 180 tons of PM2.5 compared to a business-as-usual scenario without offshore wind energy. **New Yorkers will also save approximately $1.0 billion in health costs and, more importantly, avoid about 100 fewer premature deaths.** [2]

In 2014, Governor Cuomo initiated the 2015 New York State Energy Plan which states, "In 2014, Governor Andrew M. Cuomo launched New York's signature energy policy, Reforming the Energy Vision (REV). REV will build an integrated energy network able to harness the combined benefits of the central grid with clean, locally generated power. [4]" Governor Cuomo's plan will attempt to offset market instability associated with fossils fuel by mandating renewal energy resources.

REV provides opportunities for industrial leaders to work with environmentalists for the common good of all. As electrical usage increases, electrical supply must increase to meet the growing demand. The renewable energy government initiative to reduce emissions into the atmosphere by 40%, increased electrical generation from renewable resources to 50%, and save 600 trillion BTU of primary energy through energy efficiency is stimulating the private innovative ability and investment.

Offshore Wind Farms & Gravity Based System Project

The US Department of Interior, Bureau of Ocean Energy Management (BOEM) facilitates lease issuance for offshore wind farms. According to the BOEM website https://www.boem.gov/renewable-energy/lease-and-grant-information [5] there are 16 lease areas ranging from North Carolina to Rhode Island. A majority of the lease areas are located in Massachusetts New jersey and New York. The total active lease areas for these states is approximately 1 million acres and up to 50 GW of OSW is anticipated to be installed in these areas to meet the renewable energy targets of New York and these other northeastern states.

Private sector innovation is required to meet the growing needs for offshore wind farm development. The POC is a facility known for the innovative ability to manufacture and ship large, "heavy lift" products. These wind projects cause demand for development of a facility that is capable of manufacturing and shipping 8,000-ton or heavier gravity based systems (GBS). In contrast to steel foundation options mainly coming from Europe, the GBS units will create a demand for local materials and worker sourcing. As stated above the fabrication of these GBS

and other OSW components will create thousands of jobs. The GBS is an innovated approach to steel options when considering providing stable and structurally adequate foundations for the wind turbines sited in relatively shallow water lease areas. In addition, large concrete-based foundations are anticipated for use in deeper water areas where floating turbine technology is appropriate. As further described below these large concrete base systems will require procurement of local building materials including cement, sand, stone, steel reinforcing and other materials.

POC infrastructure improvements will include: GBS fabrication area, new dock installation for GBS structure load out, concrete batch plant to pour concrete, site grading to reduce grades and slopes to access laydown areas, material storage, upgraded roads, building demolition, dredging, and environmental permitting. Such infrastructure improvements will allow for manufacturing and delivery of GBS, as well as other concrete-based components for future OSW wind farms.

Purpose and Need

In 2019, the New York State Energy Research and Development Authority (NYSERDA) procured the largest offshore wind solicitation in the nation's history with Equinor Wind US, LLC and Sunrise Wind LLC. These offshore wind projects are proposed to be installed in relatively shallow waters near Long Island.
Based on New York State's demand for renewable energy resources described above, including offshore wind resources, the POC has been selected as an existing Port that is capable of providing the necessary fabrication and laydown areas as well as support services associated with these types of heavy lift projects. Various site infrastructure improvements are being planned and designed for the POC. These improvements will allow for the Port to accommodate and service the unique needs associated with fabrication and assembly of these large, heavy OSW components, including the concrete GBS, scour protection and EcoConcrete structures, etc.

GBS Assembly Area

Manufacturing large 100 feet tall by 150 feet diameter concrete GBS structures requires specialized infrastructure facilities. Assembly yards, docking platform(s) and dock transfer locations will require ground modification as well as support structures consisting of spread footings or pilings founded on soils or underlying bedrock. Steel or reinforced concrete caps will be constructed over top the steel piling structural supports to enable fabrication and moving the large structures over flat, smooth and adequately supported surfaces. GBS foundations will be lifted onto self propelled modular transporters (SPMT's) such as those manufactured by Mammoet to be transported from fabrication to storage or shipping locations. Reference is made to the Overall Site Plan showing the areas of proposed site improvements and usage (See Figure OS).

New Launching Dock Installation & Dredging

GBS structures loadout and shipping requires a high level concrete wharf (dock) supported by steel pilings to bedrock. A new heavy duty dock will be constructed inland and approximately along the line of the deteriorated existing timber bulkhead at the river bank. The new dock will be approximately 400 feet long to service the transport barges or structure float out. Dredging will be required to extend from the area of the dock to the navigation channel of the Hudson River. Appropriate draft depth is required for large barges to transport the GBS structures. Bathometric surveys indicate the current draft depth in this area is -12 feet Mean Low Water Level (MLW). The draft depth for the required barges is approximately -25 feet MLW; therefore, dredging will be required, primarily in previously disturbed areas, to provide adequate depths for GBS offloading and transport. Direct float out of the GBS components will require dredge levels of approximately -30 feet MLW. Given dredging will primarily be limited to previously disturbed areas, potential impacts to the benthic substrate and associated ecological functions of the river will be minimal.

The dock will be constructed by inserting a grid of steel pilings to bedrock with steel reinforced concrete decking formed over top of these structural supports. Additionally, a steel sheeting bulkhead will be constructed along the face of the dock and extend well below the mudline. Double pile clusters fendering dolphins will be installed on both the ends of the new dock to accommodate vessel docking and tie off.

In order to construct the new dock and minimize dredging requirements, the existing assembly sleds will likely need to be to be removed. The distance between the existing assembly sleds is approximately 250 feet, where the required barges for this project may extend up to 400 feet long x 130 feet wide. Similar to the required dredging, the new dock structure will be located in an area previously disturbed by the existing finger trestles shoreline bank stabilization.

Concrete Batch Plant & Material Storage

A concrete batching plant is used to manufacture concrete from its ingredients, including cement, crushed stone, sand, water and admixture chemicals. Concrete mixtures are manufactured based on engineering project specifications. Concrete mixture specifications vary by altering the proportion of various raw materials as mentioned above.

Up to two concrete batch plants will be installed above the lower yard on the southwestern portion of the POC. A component of concrete batch plant production is identifying the location of onsite aggregate storage. Stockpiles will be located immediately adjacent to the batch plant, allowing for easy access to materials. Water provided by the Town of Ravena will also be needed for batch plant operation. The maximum amount of water needed at peak GBS construction operation has been estimated to be approximately 0.31 acre-feet per day. Water supply will be confirmed through the Town and recycling will be employed as appropriate.

It is proposed that any discharges from the concrete batch plants will be collected in sediment pond(s) and will be contained for pump, haul and subsequent treatment and disposal. Concrete slickline/truck washout will also discharge into the sediment pond(s) onsite.

Batch plant cement materials will be acquired from a neighboring facility (Lafarge), requiring no trucking through the town. Other materials, such as metal rebar, sand and aggregate will be delivered by either truck or barge.

Site Grading & Laydown Areas

The fabrication area, laydown areas, and storage areas will be graded to be less than 1% slope. The fabrication area is proposed to be located along the western portion of the lower yard. The existing elevations will be extended northerly by utilizing a new retaining wall adjacent to the upper road.

Material laydown areas are proposed to be located on both the north and south ends of the POC site. The northern laydown site will be larger than the southern, being approximately 15 acres, making it the major material laydown and storage area. These laydown areas will be used for temporary material storage. Such materials may include, but are not limited to steel sections, steel reinforcing, etc.

Upgraded Roads

All surface areas that will be associated with GBS structures fabrication and transport will need to be upgraded or confirmed to have adequate bearing support for the 8,000+ ton GBS structures and associated SPMT Mammoet moving. Upgrades might include the addition and compaction of soil/gravel materials, paving of surfaces, or other improvements to support the large amount of weight that will be transported on the roads.

Building Demolition

Demolition of buildings will be required to make additional laydown and storage area for the GBS foundation fabrication location. Demolition of six (6) buildings, located toward the center of the POC site will total approximately 45,500 square feet (See Figure OS).

Environmental Permitting

Permits from multiple agencies are required for this project. It is anticipated that the following permits will be required:

- U.S. Army Corps of Engineers Section 10 Individual Permit will need to be submitted.
- NYSDEC Article 15 Permit
- NYSDEC SPDES Permit -GP-15-002 for stormwater discharge associated with a construction activity.

- NYSDEC Multisector SPDES Permit-GP-17-004 (concrete batch plant) will be required. Modification to existing facility permit may be required. According to the NYSDEC, if the concrete batch plant uses a baghouse and a pour shroud is installed to prevent any spillage when concrete is poured, an air permit will not be needed. If an Air Permit is needed, an application will be completed and sent in to DEC for review.
- Essential Fish Habitat and Section 7 ESA Consultation (Sturgeon) with NMFS will be required.
- NYSDOS Coastal Consistency Certification, including submitting a Federal Consistency Assessment Form (FCAF), including for NWP#6 Survey (Sediment sampling), Dredging
- SHPO Consultation will be required.
- NYSDEC SEQR Review will be required.

References

1. Port of Coeymans. Project Summaries, April 23,2018; 9 Pages.
2. NYSERDA, Website Offshore Wind in NYS-Benefits of Offshore Wind, https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Studies-and-Surveys
3. NYSERDA, 2018 Ports Assessment: Offshore Wind Operations and Maintenance Port Facilities, NYSERDFA Report No. 19-05/January 2019
4. NYSERDA, 2015 New York State Energy Plan, https://energyplan.ny.gov/Plans/2015.aspx. Accessed 13 December 2019.
5. US Department of Interior, Bureau of Ocean Energy Management, Lease and Grant information, Accessed 13 December 2019