Empire Offshore Wind LLC

Empire Wind 1 Project

Article VII Application

Exhibit 6

Economic Effects of Proposed Facility

October 2021

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ACRONYMS AND ABBREVIATIONS

BOEM	Bureau of Ocean Energy Management
ConEdison	Consolidated Edison Company of New York, Inc.
Empire, the Applicant	Empire Offshore Wind LLC
EW 1	Empire Wind 1
HVAC	high-voltage alternating-current
km	kilometer
kV	kilovolt
Lease Area	BOEM-designated Renewable Energy Lease Area OCS-A 0512
mi	mile
nm	nautical mile
NYCRR	New York Codes, Rules and Regulations
NYISO	New York Independent System Operator, Inc.
NYSERDA	New York State Energy Research and Development Authority
NYSPSC or Commission	New York State Public Service Commission
POI	Point of Interconnection at the Gowanus 345-kV Substation
Project	EW 1 Project transmission facilities in New York
PSL	New York Public Service Law
SBMT	South Brooklyn Marine Terminal

EXHIBIT 6: ECONOMIC EFFECTS OF PROPOSED FACILITY

6.1 Introduction

Empire Offshore Wind LLC (Empire, or the Applicant) proposes to construct and operate the Empire Wind 1 (EW 1) Project as one of two separate offshore wind projects to be located within the Bureau of Ocean Energy Management (BOEM) designated Renewable Energy Lease Area OCS-A 0512 (Lease Area). The proposed transmission system for the EW 1 Project will connect the offshore wind farm to the point of interconnection (POI), and will include 230-kilovolt (kV) export and 345-kV interconnection lines traversing a total of approximately 17.5 miles (mi) (15.2 nautical miles [nm], 28.2 kilometers [km]) within the State of New York. An electric transmission line with a design capacity of 125 kV or more, extending a distance of one mile or more, is subject to review and approval by the New York State Public Service Commission (Commission or NYSPSC) as a major electric transmission facility. This application is being submitted to the Commission pursuant to Article VII of the New York Public Service Law (PSL) for the portions of the EW 1 Project transmission system that are located within the State of New York (collectively, the Project).

The Project will interconnect to the New York State Transmission System operated by the New York Independent System Operator, Inc. (NYISO) at the Gowanus 345-kV Substation (the point of interconnection, or POI). The Gowanus 345-kV Substation is owned by the Consolidated Edison Company of New York, Inc. (ConEdison). The Project's onshore facilities, including the onshore cable route, onshore substation, and the POI, are located entirely within Brooklyn, Kings County, New York.

The Article VII components of the EW 1 Project include:

- Two three-core 230-kV high-voltage alternating-current (HVAC) submarine export cables located within an approximately 15.1-nm (27.9-km)-long, submarine export cable corridor from the boundary of New York State waters 3 nm (5.6 km) offshore to the cable landfall in Brooklyn, New York;
- A 0.2-mi (0.3-km)-long onshore cable route and substation including:
    - Two three-core 230-kV HVAC EW 1 onshore export cables buried underground from the cable landfall either directly to the cable terminations or to a vault within the onshore substation;
    - An onshore substation located at the South Brooklyn Marine Terminal (SBMT), which will increase the voltage to 345 kV for the onshore interconnection cables; and
    - Two 345-kV cable circuits, each with three single-core HVAC onshore interconnection cables, buried underground from the onshore substation to the POI.

This Exhibit addresses requirements of 16 New York Codes, Rules and Regulations (NYCRR) §86.7: Economic Effects of Proposed Facility and describes anticipated effects the construction and operation of the proposed facility may induce in the residential, commercial, or industrial land-use patterns of adjacent areas (i.e., economic effects).

6.2 Existing Demographics/Economic Conditions

The local economy and demographics (e.g. population, employment rates, and local economic conditions) are the significant factors that affect residential, commercial, and industrial land-use patterns. As noted above, the Project's onshore facilities, including the onshore cable route, onshore substation, and POI, are entirely within

Brooklyn, Kings County. Kings County is coterminous with Brooklyn, which is a borough of New York City. Kings County is the most populous county in New York State, and the second most populous county in the United States (New York State, n.d.). **Table 6.2-1** below illustrates the local demographics of Kings County in comparison to New York State.

Table 6.2-1 Existing Economic Conditions in Kings County and New York State

State/ County	Total Population a/	Population Density (persons per square mile) a/	Per Capita Income	Median Non-Family Income	Civilian Labor Force	Unemployment Rate	Top Three Industries b/
New York State	19,572,319	411.2	$39,326	$68,486	10,045,829	5.5%	E, P, R
Kings County (Brooklyn)	2,589,974	35,369.1	$34,173	$43,219	1,307,649	6.2%	E, R, P

Notes:
a/ 2019 5-year estimates
b/ E = educational services, and health care and social assistance; P = professional, scientific, and management, and administrative and waste management services; R = retail trade
Sources: U.S. Census Bureau QuickFacts New York 2018; American Community Survey 2019, 2015-2019 American Community Survey 5-Year Estimates

6.3 Construction Effects

No significant land use changes are expected to occur as a result of the construction of the Project. The onshore portion of the Project will be constructed on a parcel in an industrial area and within existing roadway rights-of-way. As a result, it is not expected to cause significant land use changes.

The Project will positively affect the local economy by increasing employment and earnings in the construction industry. Approximately 700 jobs (estimated as annual jobs) will be created for Project construction activities in New York, including construction of the onshore cables, onshore substation, and the portion of the submarine export cable within New York State waters. These construction jobs will be created through direct employment by the Applicant and by its direct suppliers and contractors. Many of these construction jobs are anticipated to be located in the vicinity of the onshore cable route in Kings County. Local workers and local suppliers and contractors will be used to the maximum extent practicable; however, the precise number is uncertain at this time.

A portion of the newly created jobs will likely be filled with the local workforce. The Applicant has made a commitment to work with local unions and to ensure that job opportunities and development programs created through the Project are marketed to local job seekers and serve low-income residents. In addition, the Applicant has agreed to make workforce and partnership commitments to maximize the impact of its investments and presence in New York City throughout all phases the Project. However, it is anticipated that there will be a slight influx in workers relocating to the area surrounding the Project. The increase in workforce will likely result in an increased demand for temporary housing for workers and their families, causing a decrease in vacancy rate. The Applicant anticipates that construction workers will find temporary housing throughout the New York metropolitan area and surrounding region, not just within the Sunset Park neighborhood or Kings County, given the Project's close proximity to mass transit options and/or major highway corridors. As such, the anticipated increase in relocated workers is unlikely to be greater than the available number of temporary

housing units and is not expected to create a shortage or create a noticeable disruption in the local housing market.

The influx of workers will likely result in an increased demand for public services, including police and fire services. However, there is sufficient capacity in the numerous hospitals, fire departments, law enforcement personnel, and public schools in the vicinity of the Project and in the larger Kings County area, so the Project will not impact the availability of public services.

Construction activities are expected to directly result in an increase in local spending on construction and other materials, and the new construction workers are expected to spend some of their payroll in the local area, increasing the overall demand for local goods and services. These local expenditures and wages would temporarily increase local income and sales taxes.

6.3.1 Construction Schedule

Project construction is anticipated to occur over a period of approximately three years. Pending receipt of all required permits and authorizations, Project construction is expected to begin in 2023 and be completed in 2025. The Applicant anticipates construction will begin with onshore construction activities, including onshore site preparation, construction of the onshore substation, and installation of onshore cables; however, construction schedules are subject to various factors, such as state and federal permitting, financial investment decisions, power purchase contracts, and supply chain considerations. The sequence of construction activities will be determined following the Applicant's selection of construction contractors, and a construction schedule will be provided as part of the Project's Environmental Management and Construction Plan.

6.3.2 Mitigation of Construction Effects

Given the density of the local area and availability of housing throughout the New York metropolitan area, the workforce size for Project construction is not anticipated to result in significant changes in local residential, commercial, or industrial land use or socioeconomic patterns; therefore, Project-related construction employment and income will not require any mitigation. Moreover, because this is new construction, no temporary impacts to existing electricity service, such as planned outages, will be needed except what may be required for final interconnection.

6.4 Operational Effects and Mitigation

The Project will not result in long-term changes affecting existing residential, commercial, or industrial land use patterns in the vicinity of the Project. The submarine export cables will be located entirely underwater and buried. The cable landfall and onshore substation will be located at SBMT, in an area of Brooklyn that is developed and industrial. From the onshore substation, the onshore interconnection cables will traverse existing roadway rights-of-way for approximately 0.1 mi (0.2 km) to the POI at ConEdison's existing Gowanus Substation. **Exhibit 4: Environmental Impact** assesses the Project relative to existing land use policies and regulations, as well as visual and other environmental resource impacts. The Project is not anticipated to adversely impact visual or other environmental resources in a manner that would affect land use patterns. Land uses adjacent to the Project will remain unchanged following construction and during operation of the Project, and the Project is not anticipated to affect future real estate development because onshore Project facilities are located within a Manufacturing 3 district under the New York City zoning code. Manufacturing 3 districts are designated for areas with heavy industries that generate noise, traffic, or pollutants, and are usually located near the waterfront and buffered from residential areas.

To the extent that the Project improves the reliability of the power supply, the Project will support existing land uses and could encourage future economic development, potentially including future renewable energy generation in the region.

The Applicant does not anticipate any operations jobs that will be dedicated specifically to the maintenance and operation of the Project, including the submarine export cables in New York, the onshore substation, and/or the onshore cables. However, some employment will be created for the operations and maintenance of the EW 1 Project electrical systems as a whole, covering both New York State, onshore and offshore facilities, including at the operations and maintenance facility for the offshore wind farm, which will be located at SBMT. In its 2019 report on its first (Phase 1) Offshore Wind Renewable Energy Certificates solicitation, the New York State Energy Research and Development Authority (NYSERDA) estimated approximately 300 long-term operations and maintenance jobs in New York would result from its two awarded projects, including the EW 1 Project. A portion of these jobs will be associated with the operation of the EW 1 Project and will be responsible for ensuring the operation and maintenance of Project facilities within New York.

Since the Project is not anticipated to result in any significant changes in land use in the vicinity of the Project, no mitigation will be required.

6.5 Commercial Fishing

Construction and operation of the offshore components of the Project (the submarine export cables within New York State waters) are expected to have little to no economic effect on commercial fishing or commercial fisherman, including consideration of both the potential positive and the potential negative effects of the Project. During cable route surveys for the past three years, Empire's Fisheries Liaisons have worked to identify and conduct outreach with all of the Project Area's active commercial fishermen. As part of this effort, Empire's Fisheries Liaisons have consulted the New York State Department of Environmental Conservation's marine fisheries staff, obtained lists of New York fishing license holders, and distributed survey notices and Project information to all fishermen who agreed to receive communications. The Applicant has documented over 1,000 contacts with fishermen and fishery agencies from within the Mid-Atlantic and southern New England region, with a focus on those who travel or fish in or near the Lease Area and submarine export cable routes. These contacts include individual and group meetings, conferences, telephone conversations, emails, and text messages. The information gathered has been used throughout the planning for the Project.

To support safe navigation through and fishing within the Project Area during construction operations and to minimize interactions with the commercial and recreational fishing industries, the Applicant has developed specific stakeholder communications measures in its Fisheries Communications Plan (available online at: https://www.equinor.com/en/what-we-do/empirewind/for-mariners.html) and its Public Involvement Plan (see **Appendix D: Public Involvement Plan**).

Empire's outreach, research, and discussions with fishermen indicate that in recent years the Project Area has not been heavily fished. Fishing in this area primarily includes pot/trap fishing for blackfish (tautog), black seabass, and conch/whelks. Gillnets may also be used along the submarine export cable route and may be fished "blind" similar to pot/trap fishing. There is also some seasonal fishing for crabs with light dredges, and hydraulic clam dredge vessels may occasionally harvest bait clams. Fishermen have indicated that they no longer catch lobsters in New York State waters along the submarine export cable route. More than 100 survey days have been spent on the submarine export cable route, and no contact with fishing gear has occurred.

6.5.1 Construction Effects to Commercial Fishing

Cable installation activities for the submarine export cables may overlap temporally and spatially with fishing activities. In the event of an overlap, it is possible that it will be necessary to ask fishermen to move their gear to other areas temporarily during cable installation and burial of the submarine export cables. To minimize potential fishing access impacts while ensuring safety, export cable installation activities will utilize a "rolling" construction safety zone along the submarine export cable route. As a result, submarine export cable installation impacts are anticipated to predominantly represent short-term impacts to fisheries where cable installation activities occur. Once cable installation in an area is complete, marine activities, including commercial and recreational fishing, will be able to resume.

Much of the fishing effort in the region (otter trawling, squid trawling, scallop dredging, hydraulic clam dredging, etc.) is concentrated outside of the Project Area based on Automatic Identification System and Vessel Monitoring System Transit Counts, as well as fishing vessel transit data supplied by the commercial fishing industry as part of the New York State sponsored Fisheries Transit Workshop in Port Jefferson, New York and information gathered through fisheries outreach. These data indicate that the level of fishing activity within the Project Area is variable, but available data from recent years (approximately 2011 to 2016) indicate low levels of fishing activity; therefore, with rolling safety zones to minimize the effect of potential displacement from fishing areas, the potential for economic impacts due to loss of access to grounds during installation of the submarine export cables is expected to be minimal.

As described in **Exhibit 4**, construction activities may result in localized, short-term impacts on fish and invertebrate resources, including: short-term physical disturbance of habitat, short-term exposure to underwater noise during construction activity, and short-term increase in turbidity and sediment deposition. The analysis of potential impacts supports the overall determination that construction activities associated with the Project would be unlikely to result in significant adverse impacts on demersal or pelagic life stages of fish or invertebrates. Because impacts on demersal and pelagic life stages of fish and invertebrates are likely to be short-term and localized, construction is not expected to affect managed fishery stocks or populations and therefore is not expected to result in economic impacts.

6.5.2 Operational Effects to Commercial Fishing

The presence of Project-related submarine export cables during operations will not restrict access to traditional fishing grounds along the submarine export cable route. The Applicant will determine through a Cable Burial Risk Assessment the appropriate target burial depth for submarine export cables, informed by engagement with regulators and stakeholders (including commercial fisheries stakeholders), extensive experience with submarine assets, and based on an assessment of seabed conditions and activity (including fishing) in the area. The target burial depth accounts for seabed mobility and the potential risk of interaction with external hazards such as fishing gear and vessel anchors, while also considering other factors such as existing navigational routes.

The submarine export cable siting corridor is engineered to minimize areas where burial might be hindered by seabed conditions including hard grounds, variable glacial tills, areas of steep slopes, and shallow or surficial hardbottom or ledge. However, in certain locations where target burial depth is not achieved, cable protection may be required. It is anticipated that cable protection will have minimal impact to the existing fisheries, as areas where the seabed dictates cable protection are often found in proximity to other known seabed obstructions (snags) and therefore are not likely trawled or dredged.

Should an area of surficial hardbottom or a subsea asset crossing necessitate external protection of the cables (e.g., crushed rock), that area of bottom could become a snag to trawling or dredging (i.e., due to the potential

for gear hangs), and that area may be considered ground lost to mobile gear. However, the available information indicates few if any crossings in trawling or dredging grounds where such crossing protection would be required. Cable burial remediation techniques, when applied, will be designed to minimize the potential for gear snags, as feasible. In areas where concrete mattresses are essential, for example at asset crossings, they will be covered by another material (e.g., crushed rock). Fixed gear fishing around such deployments would continue as normal or with the potential benefit of additional hardbottom seabed structure.

Based on the expected low levels of commercial fishing activity along the submarine export cable route and the continued access to fishing above subsea cables, the effects of the submarine export cables on commercial fishing operations are expected to be negligible. The introduction of hardbottom habitat may also have a positive impact in creating habitat for certain fish and invertebrate species (see **Exhibit 4**), although that positive impact is anticipated to be negligible in the context of managed fishery stocks or populations along the submarine export cable route, due to the relatively small area affected.

~~6.5~~6.6 Impacts on Energy Supply and Additional Economic Benefits

The EW 1 Project is one of two projects selected by New York State in its Phase 1 Offshore Wind Renewable Energy Certificates solicitation. Together, the two Phase 1 projects will provide approximately 1,696 megawatts of offshore wind energy to New York State, enough to power more than one million New York homes (NYSERDA 2018). Under the NYSPSC Clean Energy Standard adopted in 2016, 50 percent of New York State's electricity must come from renewable sources of energy by 2030, with 2.4 gigawatts of electricity generated by offshore wind. Additionally, the Climate Leadership and Community Protection Act, passed in July 2019, requires 70 percent of New York's electricity to come from renewable sources by 2030 and 100 percent to be renewable by 2040, including 9 gigawatts of electricity from offshore wind by 2035. The EW 1 Project will advance New York State towards meeting these milestones, will contribute to the diversification of New York's energy portfolio, and will reduce greenhouse gas emissions.

The EW 1 Project will provide economic benefits to New York and the local Kings County area through job creation (direct, indirect, and induced), infrastructure investment, supply chain development, benefits to ratepayers, and cost savings through emissions reductions. In 2019, NYSERDA released its report on its Phase 1 award projects (NYSERDA 2019). Together, the two Phase 1 award projects, including the EW 1 Project, are anticipated to provide a combined economic benefit to New York of $3.2 billion in private investment in labor, supplies, development, and manufacturing throughout New York State. They are expected to provide more than $85 million in investments in long-term port facilities, related infrastructure, and new technologies, and contribute $20 million in combined public and private investments for a new Offshore Wind Training Institute. The Phase 1 award projects will also create $3 million in combined public and private investments for a Community and Workforce Benefits Fund that would connect New York communities with job opportunities in the offshore wind industry, particularly New York's low-income and environmental justice communities (NYSERDA 2018).

The development of the EW 1 Project will confer additional economic benefits on New York by reducing production costs and emissions, which will provide additional value to New York ratepayers (NYSERDA 2019). Production cost and emissions reduction benefits are expected to result from reducing reliance on thermal energy generation. The New York State Offshore Wind Master Plan (NYSERDA 2017) estimates that the development of 2,400 megawatts of offshore wind energy 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. Reducing emissions such as ozone and particulate matter will also improve air quality (NYSERDA 2017). The two Phase 1 offshore wind award projects are expected to deliver approximately

$700 million in avoided health impact benefits, due to avoided hospitalization and premature deaths associated with asthma and respiratory and cardiovascular diseases (NYSERDA 2019).

~~6.6~~6.7 References

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